

JPRS 73863

19 July 1979

USSR Report

RESOURCES

No. 884



FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 73863	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR REPORT: RESOURCES, No. 884			5. Report Date 19 July 1979	
7. Author(s)			8. Performing Organization Rept. No.	
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address As above			13. Type of Report & Period Covered	
			14.	
15. Supplementary Notes				
16. Abstract (Limit: 200 words) This serial report contains information on energy, fuels and related equipment; fishing industry and marine resources; water resources, minerals, timber, and electric power and power equipment.				
17. Document Analysis a. Descriptors USSR Natural Resources Electric Power Energy Energy Conservation Fisheries Fuels Minerals Timber Forestry Water Supply b. Identifiers/Open-Ended Terms c. COSATI Field/Group 2C, 2F, 5C, 8G, 10, 21D				
18. Availability Statement Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 75
		20. Security Class (This Page) UNCLASSIFIED		22. Price

19 July 1979

USSR REPORT

RESOURCES

No. 884

CONTENTS

PAGE

ELECTRIC POWER AND POWER EQUIPMENT

New Atomash Reactor Building Plant Described (Anatoliy Mashin; ZNAMIYA, Mar 79)	1
High Quality Repair Work Promotes Fuel Conservation (T. Yunusov; EKONOMIKA I ZHIZN, Nov 78)	14
Problems in Quality of Electric Power Discussed (F. Guseynov, O. Mamadyarov; VYSHKA, 16 May 79)	19
Special Sources of Electric Power Discussed (N. Lidorenko; IZVESTIYA, 8 May 79)	23
Production Problems at Elektropul't (L. Ivankin; LENINGRADSKAYA PRAVDA, 24 Apr 79)	28
Achievements of Soviet Georgia Praised (Grigol Abashidze; IZVESTIYA, 18 Apr 79)	32
High Power Turbine Production Expanded (V. Chicherov; IZVESTIYA, 29 Apr 79)	37
Achievements in Electric Machine Building Discussed (V. Krotov; IZVESTIYA, 29 Apr 79)	39
Atomash Construction Pushes Forward (SOTSIALISTICHESKAYA INDUSTRIYA, 15 Mar 79)	41
Transformer Production Ahead of Schedule (N. Korol'; IZVESTIYA, 8 May 79)	43

CONTENTS (Continued)

Page

Work at Armenian AES Described (S. Markosyan; KOMMUNIST, 18 Apr 79)	45
Facility Idled by Lack of Power (V. Khudayev; PRAVDA, 10 Apr 79)	48
Briefs	
First Rogun Tunnel	50
Housing for Builders	50
Settlement for Builders	50

FUELS AND RELATED EQUIPMENT

Ukrainian and Belorussian Peat Workers Adopt Commitments for 1979 (TORFYANAYA PROMYSHLENNOST', Apr 79)	51
Zhitomir Peat Association Fulfills Plan for Third Year (L. N. Shtraks; TORFYANAYA PROMYSHLENNOST', Apr 79) ..	57
Real Reasons Revealed for Offshore Drilling Lag (V. Gol'tsev; VYSHKA, Mar 79)	60
Samsonovskaya Compressor Station (A. Trut'yev; IZVESTIYA, 22 May 79)	64
Ethylene Storage Safety Measures (PRAVDA UKRAINY, 24 May 79)	65
Gas and Petroleum Transport Problems (M. Umanskiy; SOVETSKAYA ROSSIYA, 8 May 79)	66
Turkmen Drillers Receive Airlifted Supplies (PRAVDA, 13 May 79)	69
Briefs	
New Transmission Lines	70
Surgut-Polotsk Pipeline	70
Kansko-Achinsk Complex	70
Surgutskaya GRES	70
New Transmission Line	70
New Power Lines	71
New Power Line	71
Rogunskaya GES	71
Nurekskaya GES	71
New Gas Pipeline	72
New Gas Pipeline	72
Samotlor Grows	72
Patent Issued	72
Complaint on "Vyatka"	72
Reply to Complaint	73
Stavropol'skaya GRES	73
Surgut-Polotsk Pipeline	73

ELECTRIC POWER AND POWER EQUIPMENT

NEW ATOMMASH REACTOR BUILDING PLANT DESCRIBED

Moscow ZNAMYA in Russian No 3, Mar 79 pp 190-199

[Article by Anatoliy Mashin in the column "ZNAMYA on Atomash",: "First Phase"]

[Text] "Skilled concentration of forces and facilities in crucial directions, extensive adoption of advanced methods of construction and organization of active socialist competition have made it possible to implement the construction and installation plan for 3 years of the five-year plan and to begin production on the main units of nuclear reactors with large individual capacities." (L.I. Brezhnev. From a greeting to the staffs of construction and installation organizations, machine-building enterprises, planning and design institutes and all participants in the construction of the Volgodonskiy Atomash Plant.)

Much has been written about the uniquely sized Atomash Plant. The builders, installers, engineers and, of course, visitors to Volgodonsk unite in giving a tribute of admiration to the gigantic structures on the bank of the Tsimlyanskoye Sea, seeing in them the visible advance of scientific and engineering progress.

But strangely enough, the enthusiasm aroused by the Atomash buildings and their ostentatious immensity have long overshadowed for many the real, strategic meaning of the great construction battle unfolding in Volgodonsk.

Not until the end of last year, on 18 December exactly did a meeting take place which compelled everyone to ponder earnestly the in-depth significance of what is happening on this free and untrammelled steppe of the Don.

On that day the builders put the first phase of Atomash into operation and it was solemnly recorded by an act of the State Committee. On the Soviet economic map appeared not just one more machine-building giant but a plant

unique in the country and the world for manufacturing unitized reactor equipment for atomic power plants. In order to evaluate the significance of this fact to the full extent, two figures must be compared. For 21 years, from 1954 to 1975, reactors with an overall capacity of 5.6 million kilowatts have been put into operation in Soviet AES's [atomic power plants]. But the planned capacity of Atomash is 8 million kilowatts per year.

In other words, this "largest reactor plant in the world" (the words of V.V. Krotov of the USSR Ministry of Power Machine Building) really signifies and historic revolution in the rate of nuclear power development which is helping to eliminate man's dependence on traditional forms of fuel. Here, on the Don steppe, a problem of statewide importance is being solved right now. In addition, having begun operating at full power, Atomash is unquestionably also having an effect on the fate of world power engineering.

That is why such a large amount of attention is being given to the Volgodonskaya construction project by the CPSU Central Committee and the government, many USSR ministries and the Rostovskaya Oblast party organization. This refers not only to actual assistance in solving minute internal problems, although this is also very important and is producing its results. But the main thing at the government level in scale and long-term prospects is the large, serious operation being carried out on the formation of a new energy strategy, a job which is affecting many sectors of the national economy.

It is no accident that, on 19 December 1978, responding to a report from Atomash personnel on the start up of first phase of the plant, Leonid Ilich Brezhnev referred to the urgent komsomol construction project in Volgodonsk as "nationwide."

The first phase of the plant depended on the production of reactors and equipment for them with a 4 million kilowatt capacity. Construction on the second phase will begin in 1980. Operating at full power, Atomash will begin the yearly generation of 8 million kilowatts of power. This is on record in the planned quota.

The excavator who is carefully digging out the last dirt from the 22 meter pit and has excavated straight to the No 1 structure suddenly remarks:

"Do you see the two adjacent bunkers? That is where the docks for hot testing the million kilowatt reactors will be. And the one we are finishing right now is for 2 million kilowatt reactors. It is a little bit bigger."

Chief engineer of the plant Stanislav Aleksandrovich Yeletskiy, pointing at a boring lathe 49 meters (!) long and 10 meters wide, explains:

"Lathes of this kind had been manufactured with a vertical column five meters high. We asked for an extra eight meters of column to be made in order to work on the structure for the 2 million kilowatt reactors here."

And suddenly he laughs. "And maybe even 5 million kilowatt reactors."

The Krasnoyarskaya GES [hydroelectric power plant] in a single unit? The mind, of course, admires the boldness of man. The mind of the uninitiated, that is. But the judicious mind of the scientist and specialist considers this problem somewhat differently.

First of all, the distance between the first peaceful nuclear reactor on the planet in Obninsk with a 5000 kilowatt capacity and the million kilowatt reactors now being installed at the Novovoronezhskaya AES is on an incomparably large scale. And secondly, a 5 million kilowatt reactor is, for now, by its own nature a symbol, a kind of guiding star of nuclear power engineering which in its own technical essence and, of course, in its external form will be...who knows what? But in any case it is naive to suppose that 5 million kilowatt reactors will be copies of million kilowatt reactors, just five times larger.

The main difficulties in planning Atomash lie in this very uncertainty.

The costly, very complex plant for manufacturing atomic power plant equipment could not have been built by calculating only today's and even tomorrow's scientific and engineering requirements. It is necessary to look farther ahead, to the day after tomorrow at least. But the rapid progress of nuclear physics and the atomic power engineering associated with it literally any day may make fundamental changes in the general concepts of types of power-producing equipment of the near future. Thus, the appearance of a reactive power unit has rapidly transformed the aircraft for a missile. No one, even the highest scientific authorities--who are, incidentally, the most cautious--is in a position to predict with certainty the appearance of future reactors.

The "brain trust" of Atomash developers should have used maximum engineering intuition in providing equipment for the new plant that would satisfy the needs of science and engineering for many years to come, both with respect to dimensions and, of course, with respect to technology. The plan of the originators of Atomash has been altered three times. It is no small credit to the planners, designers, engineers and managers making critical decisions that, incredibly hurried by the fast construction tempo, they found in themselves again and again the courage to revise the makeup of the plant equipment whenever new promising trends appeared on the horizon of science and engineering. That was the proper official approach to the job.

And only today, not earlier, only today, when the abstract concept "unique plant" materialized in the already operating or prepared for installation machines and units, is it possible not at all metaphorically but in concrete engineering terms to speak of Atomash as a 21st century plant.

And here is another metaphorical comparison which has taken on actual technical contents. More than once in the press headlines of the sort "A Reactor is on the Production Line!" have appeared causing legitimate

perplexity of specialists and at the same time the association with the routine manufacturing of cooking utensils. Actually, this does not refer to any mass production of products for Atomash. And yet, surprisingly, a genuine production line will be developed here making it possible to shorten the reactor manufacturing cycle.

In the last planning stage, the Atomash staff has discontinued the custom of production runs and is constructing basic equipment on a single line. The large parts of the reactor will be moved only from right to left with respect to the main structure.

But what if a defect in a weld is suddenly discovered in this compartment, in the compartment of the linear accelerators where the quality of welded seams is inspected, in this five-story "house" without windows and with walls three meters thick and doors weighing a thousand tons (In the first structure there are three such "houses!)? How can it be fixed? Well, the welding machine is not idle; the next reactor has already arrived at it.

The planners included backup zones. They did not stint on square meters and additional equipment, but then they ensured the continuity of reactor production and guaranteed that the production process would have no "bottlenecks." Incidentally, a production flow arrangement of this kind required sharply increasing the number of unique machines with programmed control. The number rose so much at Atomash that it was double the corresponding indicator of the best plants in the USA.

Not making absolutes of today's interests, the Atomash developers are looking far ahead. And there is no doubt that the time will come when the planned productivity of the plant, 8 million kilowatts, will be considerably surpassed. It may seem that speaking of this now is premature, in the sometimes overlapping difficulties characteristic of the development period when only the first reactor structure is developed. But one characteristic of Atomash is that its present is as inseparably linked to the future as planting is to harvesting. Even today there are signs by which to guess the tomorrow of the Volgodonskiy machine-building giant.

Exactly 3 days before the December celebration, two meetings took place at the plant that shed light on future responsibilities of Atomash latent for a while during the commotion and anxiety of the start-up period.

During the time when the Atomash staff, including almost all of the administrative personnel, worked together with brooms and helped the builders to clear the debris from the first structure and prepare the first phase of the plant for start-up, a ship with an unusual load, a so-called "machine center" made up of machines and equipment, was tied to the moorings of Volgodonsk. They came into the USSR by sea and then by the Volga-Balta and the Volga-Don descended from North to South. Navigation had been closed down long before and the ship's route was cleared by river ice-breakers. The load was a rush order; the machine center was needed for finishing the

structure of the first million-kilowatt reactor.

And by chance coincidence, on the very same day the Atomash engineers finally agreed with the Kolomenskiy plant on the technical task for manufacturing a very unique boring and turning lathe for making parts 20 meters in diameter. This lathe was needed for 2 million-kilowatt reactors! Specifically, for the powerful fast reactor BN-1600.

Unlike the enigmatic "guiding star" with 5 million kilowatts of power, both 2 million-kilowatt reactor and the BN-1600 are the real tomorrow of Soviet atomic power engineering. Somewhere in the silence of a design bureau, their shapes are already being outlined on Whatman drawing paper.

I want to repeat that in just the past year under the roofs of the main structure has the first lathe started buzzing and the rate of Atomash development been remarkably accelerated. When they recall the annual meetings of long ago here, they say that they happened in an earlier geological period. Time here is changing its scale like an interplanetary rocket governed by the laws of the theory of relativity. The reactor manufacturing cycle measured in years seems a long time only for outside observers while for the Atomash staff it shrinks to a point.

And this brief period of time is counted beginning at that moment when, at a solemn meeting in honor of the start-up of the plant's first phase, the head of the construction project Yuriy Danilovich Chachin turned over a symbolic key of the main structure to the general director of Atomash Valeriy Grigorevich Pershin.

Although the key was symbolic it was nonetheless heavy, almost half a meter long and of thick steel. Moreover, the Atomash staff took on themselves the even heavier load of responsibility for manufacturing the first reactor on time. When Pershin urged the ahead of schedule installation of the large lathes in the main structure, saving time played one of the main but not the only role in the general director's calculations. "The plant is not lathes but a staff!" thought Valeriy Grigorevich. Meanwhile, the staff was formed not only and not so much in the plant personnel department as on the large, daily job. And Pershin hurried to start on just that job, the real manufacturing of reactors.

The almost 9,000 people of the Atomash staff were heterogenous. To Volgondsk came people drawn by the Atomash novelty and the prospect of interesting work, people like chief welder Petr Semenovitch Proshkin, junior engineer Mikhail Selishch and hundreds of others. Various crews assembled at the plant, virtuosos of the fifth and sixth ranks. The party interlayering was also high, 1,200 communists.

However, they hurried to the new construction project and those for whom there was "a desire for a change of place" were mainly called by the urge to solve personal problems, to obtain a residence and also to change household.

These chance people, torn from their roots and from a previous staff, conducted themselves as consumers, knowing their rights well and forgetting their duties.

And instead of becoming absorbed in preparing for production, Pershin had to be involved in the problem of allocating apartments around which passions were becoming red-hot.

Its main difficulty was in coordination of the order for obtaining residences on absolutely lawful, juridical bases not only according to the length of work but also according to work performance. This is because the promptest but not necessarily the most conscientious were brought to Volgodonsk first. A mechanical engineer by training, Pershin traveled as a young specialist to one of the large Leningrad plants. He started as a foreman's assistant, grew to be head of the shop and then was chosen party organizer. And here there was an unexpected conflict! The plant director whom Pershin considered his mentor decided that the young secretary of the party committee should be unquestionably subordinate to him. A challenging moral dilemma faced Valeriy Grigorevich, whether to keep his good relationship with his former idol or show party integrity immediately.

Pershin chose the second.

The communists chose him secretary three times. And when his last term of authority expired, Valeriy Grigorevich had to leave the plant.

But our lives have their own rules not bound by subjectivism. Pershin not only was returned to his native plant after several years but subsequently became its director. And last year he was appointed to be in charge of Atom-mash while at the same time having been appointed assistant to the USSR Minister of Power Machine Building.

But in the soul of this brilliant engineer and skilled worker as before lives a party worker who considers that the main thing in any industrial job is work with people. From this in particular is derived his creed "The plant is not lathes but a staff!"

Specialists in control management laugh. In order to check out the practical performance of a manager, it is enough to send him on his vacation. If the staff work deteriorates during this time, it seems that the manager is bad. If the work proceeds just as well as always during his absence, it means that the manager is excellent. But the general director of Atom-mash, in charge of a new, just created staff, is in no mood for laughing. And he has taken advantage of more reliable means of checking the skills of the engineering and technical personnel--certification.

Those who don't pass it hold a position that doesn't correspond with their practical performances and skills. So he has successfully solved one more problem peculiar to a new staff.

At this time the Rostovskaya Oblast and Volgodonskiy city party committees were conducting a large-scale organizational operation among the builders, installers and repairmen.

The assignment was the same: to complete the installation of the first equipment as soon as possible in order to begin real production of the reactors. Many things failed. The huge vertical lathes were out of service from the start. It appears that they were short of tool and fittings. Voices were heard suggesting that they shouldn't hurry, to wait a bit until the official launching of the plant's first phase.

But the chairman of the oblast construction headquarters of Atomash secretary of the Rostovskaya Oblast party committee Nikolay Mikhaylovich Ivanitskiy and Valeriy Girgorevich Pershin were firm. They should begin production at any cost! Not for the fanfare, not only to save time but in the name of rallying the plant staff.

On 15 August a violet shaving was removed from one part of the Volgodonskiy reactor. The plant had begun to live!

After just one week it was clear that expectations were borne out. Two of the first lathes had, as it were, set a new efficient pace. All of the plant departments had pulled together at once and become more disciplined. Serious production had really begun! Pershin compared the event with a well-known illustration. When a powerful magnet is placed into a jumble of iron filings, they are oriented in the direction of the lines of force creating a strict order.

Fifteen years ago, chief engineer of Atomash Stanislaw Aleksandrovich Yeletski had to crawl on his knees into the maw of an atomic reactor and along with the chief designer examine the metal through a magnifying glass. Were there any cracks in it? The reactor housing underwent at the plant so-called hot testing, a test with temperature under pressure. And its developers were worried about the condition of the special protective coating on the inside surface of the steel shell.

That reactor was small and narrow, not expanded. And Yeletski dreams about that time when he got inside of a million kilowatt reactor. There a regular crowd could be accommodated conveniently.

In his youth Yeletski dreamed of entering MVTU [Moscow Higher Technical School imeni N.E. Bauman] to become a turbine specialist. And he did enter! But leaving the joys of home in Taganrog he was late for the start of institute studies. In punishment they transferred him to a group of boilermakers. Around such chance bad luck turned the greatest good luck in his life. Yeletski was already convinced of this in an introductory lecture by a well-known heat engineering professor F.F. Knorre who advised the affected first course students that they would soon hear about atomic powerplants.

1952 went by.

And they actually did introduce the study of the Obninskaya AES in the training program of the student boilermakers. Then he participated in work on the first boiling-water nuclear reactor located in Melekes. He directed preparation of the first fast reactor (fast neutron) BN-350 which was located in the city of Shevchenko and finally the equipment for a channel reactor for the Leningradskaya AES and a large-scale fast reactor BN-1600 for the third unit of the Beloyarskaya AES.

But this is not yet the end. Yeletskiy took charge of developing a steam generator for the atomic power plant in Rheinsberg (GDR) and after that worked there (under the terms of the contract) as the chief engineer for installing and debugging the reactor installation. He also participated in its start-up.

Thus, Stanislav Aleksandrovich had every reason to believe that his fate had not injured him. He got into the very thick of the intensive events associated with generating atomic power and was a participant, as a matter of fact, in all of the most important stages of its rapid development. He acquired experience in planning, manufacturing, installation, debugging and starting up atomic reactors. In short, he obtained his complete practical training in the field of reactor building.

In 1966, immediately following his return from the GDR, Yeletskiy was unexpectedly invited to the Moscow Giprot'yazhmash Institute and asked to give lectures to planners on atomic power plants and their equipment. Just then Stanislav Aleksandrovich found out for the first time that the task of developing atomic machine building was included in future plans. Could he have thought at that time that he would become chief engineer of the reactor equipment plant?

But Stanislav Aleksandrovich Yeletskiy not only had quite a rare background in reactor building, he also had experience in working in the position of chief engineer for the Podol'skiy Machine Building Plant.

On 2 September 1974 Yeletskiy put his wife and small son in his car, threw a few suitcases in the trunk and was carried off from Podol'sk to Volgodonsk.

He was just 40 years old.

Somewhere near Voronezh Stanislav Aleksandrovich turned on his car radio and was listening to some kind of children's songs. He smiled and gratefully recalled the head of the heat engineering faculty Fedor Fedorovich Knorre, his introductory lecture and prophetic words: "You are awfully lucky! Heat engineering is on the verge of a new flight. You will not regret that you transferred to this remarkable specialty!"

The professor was not only a brilliant scientist but also an excellent musician and composer. He loved to compose music for children's songs.

It is not by chance that it takes so long to produce reactors. More than a third of the time is spent monitoring their performance. One cannot regret the efforts to position the heat sources in absolutely reliable, safe housing.

Incidentally, the "stream" on whose development chief engineer of the Volgodonskiy plant S.A. Yeletskiy invested a large amount of work is also called upon to "discipline" production. At the dawn of atomic power, when they assembled the first reactor for the Novovoronezhskaya AES, to a certain extent by trial and error since they had no experience, every now and then encountering unforeseen difficulties, Stanislav Aleksandrovich and other young engineers fanatically devoted to the job did not leave the plant at all. The cots on which they napped stood right in the shop. But here at Atommash this sort of thing did not have to happen. Here everything had to be set up like a well adjusted mechanism.

But a mechanism has its own defects: it is soulless.

And what is to be done with the wholesome fanaticism of people in love with their work and with the creative enthusiasm (banal, but true!) without which the staff withers away and become helpless when encountering difficulties and which today are helping the Atommash staff to overcome all of the obstacles that arise? Isn't the creative spirit extinguished at that very moment when, to the general joy, the production process is normalized?

The questions are not at all idle. Valeriy Grigorevich Pershin even now is pondering them, trying to maintain and develop the continuous general impetus given birth by the turbulent stage of the start-up period.

To Volgodonsk came engineers and skilled workers, technicians, welders and metals scientists from the whole Union. They arrived with the dream of participating in a very interesting industry. But unexpectedly for most of them and possibly for all, in that very period when only production preparation was taking place, the general director proposed a still more interesting and enticing task: to think of scientific research and dissertation topics.

Preparatory courses were set up at the plant for passing the minimum candidate's work.

It would have been wasteful not to use the unsurpassed, unique production base of Atommash for serious experimental and scientific work in the future. Such a viewpoint is also held by the vice president of the USSR Academy of Sciences E.E. Velikhov who arrived at Volgodonsk. The Northern Caucasus Scientific Center for Universities has already signed an agreement to cooperate with Atommash.

Drawing into its orbit all of the new departments, the Volgodonskiy plant is gathering strength so rapidly that today it has outgrown its name and consequently has been renamed the Atomash Production Association. And there is a possibility that in the distant future when the Volgodonskiy Industrial Center has been completed the plant will change its name again and we will hear about the Atomash Industrial and Scientific Association.

Is this premature again? But it has already been demonstrated repeatedly that the reality of Atomash is outstripping even its own daring predictions. For instance, not so very long ago, in 1977, the chairman of the Rostovskaya Oblast planning committee V.M. Konovalov, responding to questions from correspondents, said: "On completion of the construction of Atomash, a large construction base will have been developed in Volgodonsk which will be able to handle R 100 million in capital investments per year in the future" These were the future estimates two years ago.

And what was the reality?

By 1978 the builders and installers of Volgodonsk were assimilating R 137.6 million. And today they are assimilating R 200 million! So much for "on completion" and "in the future." And this does not take into account the construction of Energomash, a giant with the dimensions of KamAZ [Kama automotive plant] which is being erected wall to wall with Atomash. Not counting the already begun construction of the atomic power plant where the Volgodonskiye reactors are being shipped, the route is not far, 20 miles in all.

This is the reality, outstripping the dreams.

Right now, a long time before completion of construction, Atomash has begun to exert an active influence on the appearance of regional science. With the help of Atomash personnel the Novochoerkasskiy Polytechnical Institute has changed the specialization of one of the training groups, bringing boiler makers closer to the profiles of atomic machine builders. The Rostovski Engineering and Construction Institute has started to teach students those types of welding needed for Atomash: electron beam welding, submerged arc welding, inert gas welding and so on. Everyone is looking far ahead, having a presentiment about the substantial appetites of the new plant for young specialists.

In one of the remote corners of the vast first structure in the vicinity of a large number of not yet unpacked boxes with equipment for the second phase already, two squat "carts" with a carrying capacity of 500 tons each are stored, unnoticeable and plain as a bicycle in the corner of a big garage. Right now their task is to transport especially heavy loads from the Tsimlyanskiy moorings. But not long remains before the day of celebration when these powerful self-propelled crawlers will be used for their main purpose. The "carts" can be paired and are then able to carry a thousand tons at a time.

In other words, a reactor is ready.

On a remembered day, 17 December 1976, when the Atomnash builders put the structure for the auxiliary shops No 3 into service, yet another joyous event occurred in Volgodonsk. The very first kindergarten opened its doors in the new part of the city. Exactly 2 years later to the day, the Volgodonskians carried on this tradition. At the same time that the first phase of the plant was started up, the first phase of a housebuilding combine was made operational.

The problem of housing in the rapidly growing Volgodonsk is extremely acute. More than once newspapers have written about it, criticizing "Zhilstroy" for delay with good reason. But an objective cause also exists which leads to difficulties, a cause which already been mentioned. The Atomnash forecasts have been repeatedly upset.

The first plan for the plant was calculated for a lower capacity and its economic bases did not require constructing a large housebuilding combine in Volgodonsk. The estimates showed that the required housing could be assembled using imported parts. But the development rate of atomic power engineering and the successful launching of the Volgodonskaya construction project led to a review of the plan and to a doubling of the plant's capacity. Only then did it become clear. They could not manage without their own large DSK [housebuilding combine] for 140,000 square meters of housing per year. This is also the reason for the late start in constructing it.

But the sad experience was profitable. Now, when Energomash has been added to Atomnash, when the Volgodonskiy Industrial Center is growing like yeast, plans are made to erect housing many years in advance. And that DSK which the builders made operational this past December, the DSK for 140,000 square meters per year, is now called the first phase of the Volgodonskiy Housebuilding Combine. The combine itself will be exactly twice as large.

The plans have certainly been changed a lot in 2 years!

It is very hard to cope with the rapidly growing scope of the construction project. As always in a marching offensive, the rear services lag behind. The suppliers, cursing the unheard of tempos of Atomnash, are scarcely able to handle the flow of new orders and not infrequently bring the deadlines to nought. The city economy of Volgodonsk, swelling up like a puffball mushroom, is gasping under the hardship of this period, impatiently waiting for new community services to be put into effect. And the staff of builders in the meantime needs to be almost doubled and should reach 50,000 (!) people.

In 1976 when the Volgodonskaya construction project was rushing ahead, when the installers of Yuzhstal'konstruktsiya set an all-union record assembling 40,000 tons of metal structures, it seemed to everyone that the highest note had been played, that there was nowhere for the tempo to rise. But this

note turned out to be only C-flat. High C will be played in 1979 when they install 50,000 tons of metal structures. And in exactly the same way in the vortex of construction, the volume of work of all the construction trusts and administrations will grow.

The Rostovians have the experience of difficult conquests. This is true not in construction but in industry. The initiative "To work without falling behind!" which was highly rated by Leonid Ilich Brezhnev at the November CPSU Central Committee Plenum has produced excellent results. Last year in industrial enterprises of the Rostovskaya Oblast not one crew fell behind nor was there one late communist or komsomol on the work sites. The oblast party committee has proposed that this experience in construction be widely spread beginning with the Volgodonskians and with all-union shock workers.

Atomash should become a school for this method and demonstrate its viability in building such very complex projects as the second phase of the main structure and the first phase of the higher yet fourth structure in which the equipment should be installed this year.

And it is in no way impossible that it will be installed. The reactors have begun to be manufactured and stringent engineering deadlines are now pressing the builders. They have been raised to the statues of unwritten laws at the Volgodonskiy plant because production discipline decides everything here.

Barely in active operation, Atomash is already giving examples of a new approach to traditional problems. Along with labor management here they have undertaken in earnest the organization of control. An organizational plan for the plant has to be developed, describing all of the functions of control personnel so that the interaction between people in the plant will become simple and habitual.

Note the work interaction. Earlier they spoke of interrelationship and it used to happen that a quarrel between, let us say, two division managers would occasionally involve setbacks and interruptions in the document turnover. One might temporarily hold the other in a state of information famine,

Interaction implies something else. If all management procedures are precisely formulated, then even if they stop greeting each other (what bad manners!) these Ivan Ivanoviches and Ivan Nikiforoviches cannot hurt the job one iota.

There are also plans in Atomash to introduce other basic innovations. Here, based on computers of the last generation, a powerful unified center for composing control programs for automated equipment is being created. Also planned is a unique center for machine analysis of samples. In the main structure must be built a complete TETs [heat and electric power plant]--yes, indeed, right in the main structure--for hot testing reactors and for simulating nuclear reactions. The capacity of this TETs will be such that it could supply heat to all of new Volgodonsk.

All in all, a tremendous amount remains to be done. And the production of the first reactor, I repeat, has already begun. And this production which is very important for the country must be done on the deadline since the atomic power plant for which the first Volgodonskiy reactor is intended is being built at top speed.

The entire country is building Atomash. And not only building but also helping to manufacture the first reactor. Certain plants have cheerfully undertaken training and on-the-job training of Atomash personnel. Others have sent their own specialists to Volgodonsk for consultation. But probably the largest contribution has been made by the Leningradskiy Izhorskiy Plant. It has assisted Atomash greatly with personnel and given enormous technical help. And it even now is sharing with huge amounts of forge work for the reactor housing for which it has no small need itself. In general, it has donated many things to the Volgodonskiy plant, its chief competitor which right before their eyes is robbing the Izhorians of fame as reactor builders. Isn't it insulting?

It is not known who is responsible for nicknaming Atomash "the atomic samovar", whether for a remote resemblance of shape or on the principle that both heat water. Possibly, such a nickname for the most complex development of man's hands and intelligence seems somewhat too frivolous and facetious. But as experienced nuclear physicists maintain, it is completely in the spirit of Igor Vasilevich Kurchatov, the father of atomic power engineering. And it is not by chance that an enormous portrait of Igor Vasilevich Kurchatov drawn by plant artists hangs in the first structure of Atomash on the front wall of the main opening at a height of 20 meters. The portrait is not accidental and the place for it was not picked by chance. The entire colossal shop in which 38 overhead bridge cranes already run and in which "atomic samovars" will be born, initially the powerful million-kilowatt reactors and after that still larger and more powerful ones, sees Kurchatov.

And this shop began, as did both reactor building and all atomic power engineering, with that small experimental "boiler" which this outstanding scientist dared to fire by his own hand in 1946.

COPYRIGHT: Izdatel'stvo "Pravda", "Znamya", 1979

8945

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

HIGH QUALITY REPAIR WORK PROMOTES FUEL CONSERVATION

Tashkent EKONOMIKA I ZHIZN in Russian No 11, Nov 1978 pp 32-35

[Article by director of the Uzbekenergo remont Industrial Enterprise T. Yunusov in the column "We Invite Discussion": "A Potential for Saving Fuel--Rapid and High Quality Repair of Power Equipment"]

[Text] It is well known that the Soviet Union is the only large industrial state in the world which bases its economic development on domestic fuel and energy resources. This is an important advantage of our economy and a reliable basis for its dynamic progress. But in order to realize this advantage to the full extent, the most rational and economic use of fuel and electric power must be achieved.

"However the wealth of our society increases," said general secretary of the CPSU Central Committee L.I. Brezhnev at the 25th Party Congress, "the most stringent saving and economy remain the most important condition for growth of the national economy and an increase in the country's prosperity."

There is a search for ways to use fuel efficiently in power plants in the articles of A. Irgashev "Fuel and the Power System--The Basis for Further Development of the Productive Forces of the Republic" (No 9, 1977), R. Akhmenov and R. Dzhemileva "using Fuel and Energy Resources Efficiently" and M. Ivashchenko "The Job of Each Labor Collective" (NO 3, 1978).

An important potential for saving fuel is the early and high quality repair of power equipment which makes it possible to increase the operating efficiency of thermal power plants.

The task of lowering the relative consumption of fuel for each generated kilowatt-hour of electric power to 340 grams as opposed to 360 in 1975 faces the enterprises of the Uzbek SSR Ministry of Power Engineering and Electrification in the 10th Five-Year Plan.

What methods are there for solving this problem? They are replacement of obsolete, low-efficiency equipment with powerful condensation power units,

modernization of equipment and improvement of repair management for it.

Large-scale measures in this direction are being implemented in the current five-year plan. At the Syrdar'inskaya and Navoiyskaya GRES's [State regional electric power plant] high-efficiency unitized equipment is being put into operation. At the Kuvasayskaya and Takhiatashskaya GRES's it is planned to maintain obsolete equipment at medium pressure. At some power plants low-efficiency condensation units are being shifted to half peak-load operation.

With the start-up of power units with a large individual capacity and high steam parameters, a large significance is being assumed by the maintenance of their required technical condition, improvement of the technical and economic indicators and an increase in the operating reliability of the power equipment as a result of high quality repair work.

A very important indicator of the operating efficiency of power enterprises is the number of hours of use of the established capacity of the power plants. In Uzbek SSR this indicator is more than 6200 hours per year and is one of the highest in the country (the Union average is 5765 hours). The well-organized planned preventive maintenance of equipment makes possible the maximum prolongation of useful operation of electric powerplants.

As A. Irgashev notes in his article, nearly half of the fuel required in the republic is consumed in generating electric and thermal power. This obliges everyone to actively identify potentials for saving it.

The Uzbek SSR Ministry of Power Engineering and Electrification has developed a program for increasing the technical and economic indicators of power equipment not only of power plants but also of all power enterprises operating in the republic's territory.

As a result of implementing the designated measures during two and one-half of the 10th Five-Year Plan, the enterprises of the Uzbek SSR Ministry of Power Engineering and Electrification have saved more than 80,000 tons of conventional fuel. However, this is not the limit since the available potentials are still far from exhausted. For instance, the plan for reducing the relative consumption of fuel was not fulfilled by the Angrenskaya, Navoiyskaya and Tashkentskaya GRES's.

Considering the close dependence between saving fuel in power industry and the quality of repair work, the staff of our enterprise is continuing to look for internal potentials for improving the quality of maintenance.

A system for controlling the quality of maintenance work (UKRP) has been developed and put into operation encompassing a whole set of problems for improving technical and economic indicators of power equipment repair. The experience of developing this system and putting it into service is covered

in EKONOMIKA I ZHIZN No 9 for 1978.

During the operating period of the system, the UKRP has already done quite a lot toward increasing the reliability of power equipment and improving the quality of its maintenance.

The performance of major overhauls of unitized equipment with an "excellent" rating is what the UKRP system encourages. Only under this conditions is it possible to use the high-efficiency units with large individual capacity to the greatest extent, putting low-efficiency obsolete equipment on reserve.

Today, in 1978, hot water heater No 1 and turbine No 4 of the Navoiyskaya GRES have been overhauled by the departments of our enterprise with excellent quality. In this case the technical and economic indicators of the equipment have turned out better than before the repairs. The useful operation coefficient of the water heater reached 94.4 percent (before repairs it was 93.8) and the temperature of the waste gases was reduced by 8 degrees.

The relative fuel consumption in the unit was reduced to 345 grams per generated kilowatt-hour, whereas before the repair work this indicator was 377 grams.

As a result of improving the management and technology of maintenance work, putting the UKRP into operation, the use of mechanization facilities and the development of socialist competition, unit No 4 of the Navoiyskaya GRES was overhauled 28 hours and water heater No 1 48 hours earlier than the deadline. Ahead of schedule maintenance of unit No 4 has made it possible to generate and additional 4 million kilowatt-hours of electric power which could have supplied the enterprise of the Tashkentskiy Sewing Association imeni Fifty Years of the Uzbek SSR and the Uzbekistan Communist Party, the Krasnaya Zarya Sewing Association, the Malinka Tricot Association and the Tashkentskiy Instrument Plant for a month. Due to the additional generation of heat and electric power produced by water heater No 1 and unit No 4, the Navoiyskaya GRES obtained almost 38,000 rubles in profit.

For the purpose of proper operation, the timely detection of defects the determination of an economically expedient volume of future repair work and evaluation of quality of the repair work done, a diagnosis of the technical condition of the water heaters is performed on the basis of field tests. In accordance with instructions on the management of repair work of power plant and substation equipment, field testing must be performed by operating personnel. Unfortunately, this vital operation is not given the needed attention in thermal powerplants.

In our enterprise the performance of field tests before and after a major overhaul is included in the UKRP program. However, because of the incompleteness of the field testing group and the dearth of measuring instruments, tests on hot water heaters are not as yet conducted to the full extent and testing is not done at all on turbo-units.

Such progressive methods as complete overhaul service for power enterprises, factory repair of portable power equipment and specialization of repair work actively promote an increase in the reliability and efficiency of power equipment operation and a steady supply of electric and thermal power to the national economy.

In the Belorusskaya, Azerbaydzhanskaya, Dneprovskaya and Permskaya power systems, complete overhaul service for thermal power plants is extensively employed. In complete overhaul service all forms of repair work are conducted by specialized enterprises and operating personnel of the plant engaged only in maintenance of equipment. In this case, capital for materials and spare parts is given to the repair enterprises.

As experience shows, it is advisable to make the change to complete overhaul service gradually. For instance, at the beginning a specialized enterprise may take only boiler equipment of thermal power plants for complete overhaul service, gradually expanding the range of complete overhaul service afterward. The change to complete overhaul service requires serious preparation both of the repair enterprises and of the thermal powerplants.

Factory maintenance of portable power equipment at the repair bases of enterprises also has large advantages. Equipping work stations according to standard plans, staffing with highly skilled production personnel, providing for bench-mounted equipment and material handling equipment make it possible to achieve a high quality of work.

In factory repair work, the management of work is improved and opportune formulation of technical and engineering documentation is accomplished. The efficiency of factory repair of power equipment is significantly increased with the availability of exchange capital for repaired units and the required quantity of spare parts.

One more advantage of factory maintenance is that it is possible to organize active supervision of the quality of repair work and parts manufacturing, thereby ensuring the reliability of work of the centers. On the industrial base of our enterprise, factory repair work is done on high-pressure fittings, exhaust fan blade wheels, pumps and screw conveyers and coils for heating surfaces are also manufactured.

Nonetheless, the volume of factory maintenance does not suit us and to increase the efficiency of factory maintenance we must develop an optimum exchange fund for repaired units and spare parts.

Repairing thermal power plant equipment requires efficient labor management and high plant culture. For this reason we are giving special attention to production management and specialist training.

Increasing the quality, reliability and efficiency of power equipment operation is possible only when an integrated approach is taken to repair

management. In the technical division of our enterprise, a bureau of quality and standardization has been organized which is engaged in developing and putting into operation an integrated system for controlling repair work quality. It is developing standards for the enterprise, taking part in conducting "Quality Days" and carrying out record-keeping and analysis of flaws and complaints from customers.

Plant preparation for repairing units was previously done on the sites and in shops without coordination, without the guiding influence of coordinating services as a result of which it was low-efficiency. Now, in our enterprise, a division for a chief production engineer who manages all work on plant preparation for repair work has been established.

Power maintenance work is concerned with complex equipment. Sometimes in solving some technical problems or in using one or another maintenance technology, the need arises for enlisting consultants from plants and manufacturers. We state with satisfaction that, as a rule, they respond willingly to our request for help in solving complicated problems and send qualified specialists. Such cooperation gives excellent results.

A further step in this direction would be sending specialists to plants and manufacturers for participation in the most important repairs of the newest unitized equipment. This would make it possible to increase the quality of repair work and in the final analysis also improve the technical and economic indicators of the repaired equipment.

The economic use of fuel and energy should become an indisputable rule of management and an object of general responsibility. A practical contribution to solving this urgent problem is also being made by power maintenance enterprises.

COPYRIGHT: "Ekonomika i zhizn", 1978

8945

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

PROBLEMS IN QUALITY OF ELECTRIC POWER DISCUSSED

Baku VYSHEKA in Russian 16 May 79 p 2

[Article by Professor F. Guseynov, Doctor of Technical Sciences and director of the electrical systems laboratory of the Azerbaijan Scientific-Research Institute of Power Engineering imeni I. G. Yes'yan; and O. Mamedyarov, candidate of technical sciences and director of the power systems automation laboratory: "Electric Power—What Should It Be?"]

[Text] It happened in one region of the republic. All at once mercury lamps began to fail sooner than expected. The lamps are expensive, hard to get, and limited in use. It was then that economists at the Azerbaijan Scientific Research Institute of Power Engineering became concerned about the problem. After some study, the scientists fabricated and installed in the power lines a special voltage regulator, which holds the voltage at the required level. Indeed, in contrast to incandescent lamps, mercury lamps are extremely sensitive to fluctuations in current. The problem appeared to be solved. However, the real culprit for the breakdown went unpunished—the city district department of municipal services—whose inactivity is to blame for poor quality electric power. In fact, it is the municipal services administration that should have updated the antiquated facilities of the power network under its control. And by failing to do this, the All-Union State Standard (GOST) on electric power was violated and scientists were forced to install a voltage regulator. By the way, the quality of electric power is no different in most of our districts.

We are used to talking about the quality of machines, fabrics, shoes, foods. This is perfectly natural. The more so, since the 10th Five-Year Plan stresses quality and efficiency. To no less degree, the requirement for high quality also applies to electric power. Indeed, this is important because the efficiency of all industrial sectors of the economy depends on the quality of energy. Above all, the quality of

electric power is defined by the uniformity of current supplied to customers, permissible deviations of which are regulated by different networks. Usually the responsibility for the stability of electric current rests with its producers—the power engineers.

However, the quality of electric power and its rational use to a large degree depend on the user. Failure to observe the standard for energy does enormous harm to the economy; industrial processes are disrupted; equipment breaks down, and its service life reduced. In addition, as electric power consumption increases, disruptions in supply appear. And in the home? You will agree, when an electrical appliance you bought is ruined because there was a "jump" in voltage.

Unfortunately, such occurrences are not exceptional. Rather, the opposite is the case. The quality of electric power being used very often does not correspond to GOST requirements. This "malady" is quite widespread. Both those who produce the electric power, and those who service one or another power supply network are to blame for this. And, perhaps, the users more frequently than others appear the culprits of low quality electric power. It is known that the supply networks must ensure an efficient, safe, and reliable supply of electric power of satisfactory quality.

Surveys, carried out in several of the nation's power supply systems, show that deviations from permissible norms are not uncommon occurrences. At just a glance it appears that insignificant, so it seems, fluctuations in voltage, frequency, or some other parameter on a nationwide scale would result in the loss of a billion rubles a year. However, the most frequent deviations occur in the standard specifications for voltage; that is, half the loss nationwide is specifically caused by deviations in current from permissible norms.

Just what are the ways to solve this problem in our republic? The receivers of alternating current plus real (also called useful) power also consume reactive power, which is used to generate magnetic and electric fields. It is in this area that the entire effort to improve the quality of energy and rationalize its use must be directed.

Here it should be stated that a plan has been worked out in Azerbaydzhan and definite measures are being taken to improve the quality of electric power. But to this day we still have a large index of reactive power. It is especially this quantity that grows during peak loads. As a result shortages of electric power are experienced. The inadequate supply is made up by transfers from other republics—Georgia, Armenia.

Many of our large power facilities lack their own sources of reactive power—Apsheiron, Siazan', Shemakha, Udzhary, Ismally, and others, to name a few. At many substations, where such sources exist, they have become unsuitable and inactive (Apsheiron, Kirovabad, Siazan'). But here are hidden, additional reserves for improving the quality of electric power in the republic.

The problem, in our view, is often hidden in the unsophisticated operations of both the producers of electric power and its users. Examples abound. Thus, for instance, modern high-voltage transformers are equipped with units designed to regulate transformer voltage when loaded. The voltage regulators are not cheap. Transformers equipped with these voltage regulators cost almost twice as much as normal ones. Nevertheless, the government bought them. As a result, 65 percent of all 110 kw plus transformers, used in Azglavenergo [Azerbaijan Main Power Supply Administration] networks, are equipped with the regulators. However, they have been extremely ineffective. The 160 voltage regulators in the Azglavenergo network are completely inactive. In fact, the transformers operate without them. Yes, without them! The primary result is worse electric power and tremendous waste. Voltage at other supply facilities is substandard as a result.

Many of our customers, who depend on electric power quality, are no better off. It is known that in the production of aluminum and some chemicals by electrolysis, alternating current must be rectified. But this, in turn, creates undesirable side effects. The resulting superfluous currents, which spread throughout the supply network, create noise in communication lines, overloads, additional loss in power and so on. This happens because the filter units, which are supposed to prevent the superfluous current, for example, of the Kirovabadsk Aluminum Plant, the Sumgantsk Aluminum Plant, etc., are too small, inactive, or simply nonexistent.

True, there are also technical difficulties of an objective nature. At the present time modern instruments and equipment have already been developed for reliable control of each parameter individually and for overall evaluation of the quality of electric power. But, unfortunately, our industry has yet to master series production of such instruments. Control is accomplished by the readings on the usual control board meters, which do not exhibit a high degree of accuracy.

This situation is the result of a lack of attention to a significant national problem. It is being aggravated also by the fact that, as yet, the obligations of enterprises in the electric power industry have not been spelled out; nor has a realistic system of material incentives

to ensure high quality electric power been established. Many procedural problems in control have not been resolved.

The primary task of all industrial enterprises of the republic is to use all existing means to control and regulate electric current. In addition, Azglavenergo must ensure variations in frequency and voltage are within permissible limits in all power supply districts under its control. Meanwhile, the industrial enterprises are obliged to control and regulate the remaining indicators of quality.

In our view, it would be advisable to organize at industrial enterprises, along with measures underway to save material resources, reviews on improving the quality of electric power, according to a required standard. This represents a new area of endeavor for the Azerbaijan Administration of the Scientific and Technical Society of Power Engineering and the Electrical Equipment Industry. In particular, the society could conduct competitive reviews for the best proposals for improving the quality of electric power and their application in production. Organs of the All-Union State Committee for Standards must and can offer valuable help in this.

So, the number of measures cited here can play a large role in solving our problems. In conclusion, we wish to quote the words of L. I. Brezhnev, spoken at a meeting with voters of the Baumanskiy Election District: "For a long time we have lived with severe shortages, meager outputs in almost everything—in metals and fuel, machines and equipment. Naturally, all our thoughts were turned toward increasing production, toward saturating the economy with at least the basic necessities."

"Today the Soviet Union is producing almost double to triple, and even more, goods than it did 15 to 20 years ago. Nevertheless, shortages of one thing or another persist. Why? Not only because of a rapid increase in demand, although one cannot dismiss that factor entirely. The cause lies in the habit, a kind of tradition of giving greater attention to increasing the volume of production, rather than product quality, efficiency, and usefulness."

The electric power being produced in the republic is a product. And it is in our power to make it right, to see that it meets required norms and specifications.

8506
CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

SPECIAL SOURCES OF ELECTRIC POWER DISCUSSED

Moscow IZVESTIYA in Russian 8 May 79 p 3

[Article by N. Lidorenko, corresponding member of the USSR Academy of Sciences, director of the All-Union Scientific-Research Institute of the Sources of Electric Current: "Future Sources of Electricity"]

[Text] Achievements in the fundamental sciences are opening avenues for enormous savings in material resources.

The problem of using raw and manufactured materials efficiently and of reducing their proportion of the cost of end-products has become more urgent as the scale of production increases. For example, future growth in the production of electrical engineering products in the next five-year plans is planned for without a substantial increase in the consumption of basic materials.

It is known that simplifying specifications and reducing established limits or norms on consumption will allow industry to save up to 10 percent in materials. The creative efforts of workers and engineers in industrial enterprises are being directed toward this goal. Meanwhile, scientists have been enlisted to develop recommendations on conserving material resources 10 to 100 times above specified levels. Of course, this can be achieved only through success in development and application of basic research to production, which involves a fundamental restructuring of both the specifications themselves and the technology for their realization.

Just such a magnitude of savings in materials would make it possible to build the new self-contained electrical generators, whose industrial assimilation was started in the current five-year plan by the enterprises of the Ministry of the Electrical Equipment Industry.

Self-contained electrical generators work on the principle of direct conversion of thermal, chemical, or solar energy into electrical energy.

The basic source of electricity by chemical means is the voltaic cell. Today the world produces billions of such batteries. The most widely used are made of zinc and manganese dioxide electrodes. They possess 20-50 watt-hours of energy per kilogram of weight. Recently, scientists of the institute developed and are applying air-tight cells, made in a new way with an alkaline electrolyte. As a result, the cell possesses up to 70-100 watt-hours of energy per kilogram. Further improvement of these energy sources, made in the past few years, has resulted in the creation of a line of manganese-air-zinc cells, which have made it possible to increase energy output to 180 watt-hours per kilogram weight. The creation of new means of mechanization has resulted in savings not only of applied materials, including manganese dioxide and zinc, but also in labor costs. The design and fabrication technique of the batteries is patented in 28 countries.

Output of the alkaline batteries in mass production, organized by the Ministry of the Electrical Equipment Industry, totaled 11.6 million cells in 1978. This realized a savings of 228 tons of zinc, 123 tons of manganese dioxide, and 77 tons of tin plate.

The conversion of plants of the electrical equipment industry over to production of new voltaic cells in order to meet the demands of the economy would realize savings hundreds of times greater than the 1978 level. However, realization of this promise is stymied by the fact that the USSR Ministry of the Chemical Industry has failed to organize the Rustavsk Chemical Plant for production of manganese dioxide in the required volume and has not assimilated production of polyvinylchloride film for insulating the voltaic cells and improving their external configuration. In addition, the USSR Ministry of Ferrous Metallurgy is not providing the required quality of steel ribbon of 0.4 mm thickness, which is used in manufacturing the cells.

The significant savings in materials, cited here (a reduction to 1/3 to 1/5 as much as before in the standard input per kilowatt-hour of generated energy), is possible only by penetrating research into non-traditional systems for generating electricity. As is known, electrical energy is produced in a voltaic cell from the "ignition" of a metallic fuel (zinc) by oxygen, contained in the manganese dioxide. The replacement of the oxidizing agent (oxygen, contained in manganese dioxide, for oxygen in the air), as has been shown, resulted in a significant reduction in the cost of this expensive raw material.

Another of the most economical sources of ecologically pure energy is the electrochemical generator, often called the "fuel battery." This new device differs from voltaic cells and storage batteries in that the reactants (oxidizers and fuel) are contained not in their design, but in separate reservoirs and are continuously fed to the working generator. These devices maintain a high level of efficiency (up to 80 percent), characteristic of a system which converts chemical energy directly into electrical.

The advantage of the electrochemical generator (ECG) is the possibility of using as reactants (fuel and oxidizer) gases and liquids (oxygen, hydrogen, methanol, ammonia, etc.) instead of scarce metals, such as in voltaic cells. This has predetermined the low metal content of designs. Specific metal content of hydrogen-air ECG's is 1/100th that of voltaic cells, and a tenth that of lead or alkali batteries.

In the USSR and a number of other countries (USA, FRG, France, Japan) studies are underway on the massive application of hydrogen-oxygen and especially hydrogen-air generators in independent power units, mostly transportation systems (electric cars). The fuel used in hydrogen-air generators and the reaction product (water) are completely harmless, while the use of hydrogen in power systems of the future, widely discussed today, should result in safe and efficient means of storing and transporting it.

In order to conserve silver and lead, used in traditional batteries, nickel-zinc systems are being developed, which surpass the features of lead batteries. The advantage of the new type batteries is rapid charge, which makes it possible to use them in electric automobiles.

Their simple design and use of cheap materials even with a small mechanism give these batteries promise for massive use in electrical transportation and other areas.

Promising sources of electricity are being developed with lithium anode cells, which have higher operating characteristics than silver-zinc cells. Their use would make it possible to displace silver completely in the majority of areas in which chemical sources of electricity are used. The manufacture of lithium cells requires the development of basically new (especially clean) technology, the creation of special equipment and systems to service it, full automation of basic processes, and so on.

Another ecologically clean, nontraditional way of producing electric power is the conversion of solar energy into electrical by semiconductors. True, the cost of such electrical generators is still high. It is determined mostly by the high cost of semiconductor materials. For this reason the use of solar power stations is still limited throughout the world.

Lowering the cost of electrical energy, produced by this method, is tied in directly with a reduction of the cost of basic semiconductor material, and also depends on the efficiency of the generators. Research into the factors which affect the degree of efficiency, development of ways to save on basic semiconductor material, used in producing the electricity, appear the prerogative of scientists and would represent basic scientific achievements.

For the 11th Five-Year Plan the Ministry of the Electrical Equipment Industry in cooperation with the USSR Academy of Sciences and the USSR State Committee for Standards are planning to use the latest achievements in solid state physics and semiconductor technology, directed toward reducing the cost of producing solar cells and batteries, in order to expand, in particular, the areas of their applications on earth.

The possibility itself of improving the energy output factor of solar radiation is based on new achievements in the physics of layered systems. The corresponding theory, which broadens the limits of silicon and other semiconductor materials in converting solar energy into electrical, was developed in the USSR and reported for the first time in 1977 at the Universal Electrical Equipment Congress in Moscow.

Contemporary solar batteries, used mostly in providing electricity for space vehicles, are a combination of individual semiconductor photoelectric converters, rectangular in shape, several square centimeters in area. Continuous improvement in production and an increase in the efficiency of silicon photoelectric converters made it possible in the past few years to reduce significantly the amount of silicon required for a single kilowatt of installed electrical capacity. The so called "Fioletov" photoelectric converters already in production provide a capacity of 105 watts from a single square meter surface, and this is still not the limit.

Reuse of the metals without expending energy to process them into a raw material offers enormous possibilities for conserving material resources.

Scientists of our institute have developed a number of techniques for recycling the raw materials of nickel-oxide and manganese oxide electrodes when cells and batteries have outlived their service life. Use of the new technology will make it possible to use electrodes repeatedly without reprocessing them into raw materials, that is, without expending energy.

Also promising appears to be the recycling of zinc, lead, nickel, and other scarce metals, used as sources of electricity, as well as many battery parts and connections, which now are not reused.

In order to realize these possibilities there must be organized at the main plants of the industry appropriate divisions, which would develop and apply in their own plants the new technological processes for recycling scarce metals. Full metal utilization would make it possible to save the economy about 230,000 tons of lead, 21,000 tons of zinc, more than 27,000 tons of nickel a year.

Hopefully, the examples presented here convincingly show how great is the role of basic research in conserving natural resources and materials. The rapid application of contemporary achievements in physics and related sciences will make it possible to achieve enormous results in most applications of electrical and power engineering.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

PRODUCTION PROBLEMS AT ELEKTROPUL'T

Leningrad LENINGRADSKAYA PRAVDA in Russian 24 Apr 79 p 2

[Article by L. Ivankin on why "Elektropul't" is behind in deliveries to the builders of the Leningrad Nuclear Electric Power Station: "Running in Place"]

[Text] The meeting at "Elektropul't" between L. D. Malykhina, engineer of the equipment department, and V. A. Venkin, senior foreman of the Leningrad Nuclear Electric Power Station, is not going to be particularly lighthearted. It is a well-known fact here that when the envoys from Sosnovyy Bor arrive, there will be the routine complaints, demands, and frank discussions. The fact of the matter is that it is already the second year that the enterprise has reneged in its obligations to the builders of the Leningrad AES.

A crucial stage in the construction of the third reactor unit, to be operational this year, was underway. The time had come to prepare the basic equipment for operation, to connect it to the overall production system. The powerful pump system had to be started for flushing the installed generator units. There was a need to.... But the entire complex system can start operating only when the controls and automatic systems, which are mounted on switchboards and panels, are supplied by Elektropul't. The third reactor of the station requires more than 1,700 such devices, while the installers do not even have half of them.

After Elektropul't failed to meet its production plan for panels last year, the problem was considered at various levels. The two ministries, to which the plant and station belong, agreed to and signed delivery schedules literally for each control panel. In other words, Elektropul't received precise instructions on what had to be done, and when to do it. But even the existence of such an authoritative document did almost nothing to ease the builder's predicament.

"Unexpectedly, our subcontractors really let us down," explained the deputy director of production, G. M. Smolentsev. "The Nizhnetagil'sk Chemical Plant instead of 44 tons of molding powder for making the terminals delivered only half that amount. The furniture combine "Neva" cut off delivery of crates; finished material could not be sent out without them."

Well, as they say, what could be done! But these excuses of the director do not appear very convincing in comparison with facts of a different color.

Last year there was no shortage of molding powder, and the plant all the same manufactured 600 panels out of a planned 900. Did this alarm the directors of the enterprise? Rather than make up such a substantial default, the plant planned in January to produce a total of 40 panels. But even this goal was not met. A similar situation also occurred in subsequent months: plan one thing, do another. Notwithstanding the directives of the Ministry, fewer panels were produced than scheduled. Moreover, in Sosnovyy Bor, it turns out, there is no trace of many of the items that were required as early as May and June, and are critically urgent today.

What principle guides the directors of the enterprise, its production department, headed by G. M. Smolentsev, in organizing operations around such a crucial order? Probably, the principle of doing what comes easiest. As to the final outcome, apparently, no one gives it any thought.

As a result, the builders of the Leningrad AES found themselves in a difficult situation. In two months the last period for delivery of all items for the initial facility ends. Meanwhile, at the building site they are short more than 900 panels—almost twice as many as were made since the beginning of the year.

By the way, Elektropul't did not renege on just the Leningrad builders. Deliveries of items to a number of other power facilities of the country are being disrupted also. The plant is being bombarded with telegrams, but hardly do they succeed in closing out one order, then another critical situation arises on another.

Patching up gaps, rush work sap the basic strength of the collective. In the rush a sense of perspective is lost, enormous errors in planning production, in carrying out the production schedule are tolerated. This seems today to be, above all else, the root of those setbacks which have plagued the enterprise.

The symptoms of this illness appeared earlier. Last year an extremely troublesome situation arose in the completion of a critical order for Sayano-Shushenskaya GES, which this newspaper covered. A number of higher level organizations had to interfere in order to remove the consequences of the myopia which the production and planning departments of the plant exhibited. But, apparently, the lesson was not learned.

The history of deliveries for the Leningrad AES mostly resembles that of last year.

"We'll tackle the problem the last minute. We'll pull it off!"—is about the essence of the statements that were heard then and which the plant director Yu. P. Sokolov and the Party Committee Secretary I. V. Prokof'yev are making now. And they start to "tackle the problem". The head of the shop B. M. Sergeyev receives a directive to transfer his work force to finish the "hot" order. At the same time the list of panels, given top priority for production, is specified. Measures are taken to speed up delivery of molding power from Nizhniy Tagil; ways are found to accelerate deliveries of finished panels to the construction site. All of this as if there were an emergency, as though before no one even thought about the problems. Naturally, a dear price is paid for carelessness and counting on a notorious "maybe".

But in any event the builders of the station have some hope that the situation will correct itself; the directors of Elektropul't certify that they will meet their obligations to the builders in the first half of the year. But now the fate of the fourth reactor cannot help cause one to worry. In several months the panels will be needed here. However, at Elektropul't today no one is worried about it; they prefer to keep silent about the near future. Meanwhile, next year the situation will become even more troublesome: the number of projects under construction is growing. And now one can say beforehand that if emergency measures are not taken, someone again will wind up the loser.

How can these regular disruptions be avoided? There is only one way—one has to build up capacities, perfect the technical level of production and on this base expand output. However, as strange as it may seem, little is being done in this area. Elektropul't is just marking time. The complexity of the work increases, but, as many years ago, manual labor predominates in the assembly of circuits. Almost each control board, of which there are more than 10,000 in the plant's daily production run, is essentially an individual model. In the enterprise's plan on improving the organization of production, on increasing the technical level of

production there is no trace of such issues as the standardization of designs, manufacturing processes, the application of sectional assembly, principles of conveyerization, of easing the work of assemblers, of increasing their productivity.

Meanwhile, we have in Leningrad an enterprise where they have succeeded in finding ways to reduce the amount of manual labor in similar operations. In particular, this has been the experience at the polygraphic machine plant, in the "Burevestnik" Trust. Elektropul't still continues to work in the old way. People come to work here reluctantly.

"For the last four years," acknowledges B. M. Sergeyev, "the shop has lost about 100 experienced workers. We have not succeeded in hiring replacements."

The personnel problem is one of the severest for Elektropul't. But neither management, nor the party committee has proposed any kind of effective program for increasing the work force, and for retaining personnel at the enterprise. The matter will not be corrected by a few employment notices.

It is quite obvious that the difficult situation in which the enterprise finds itself today is the result of a weakening of technical supervision, basic neglect by the party of the problems of developing production. Crash efforts are clearly unreliable means to achieve assigned objectives. It is difficult to expect noticeable improvements if the style of the management at Elektropul't remains unchanged, if radical improvements do not occur in the organization of business, if the plant supervisors, as before, rely on crash programs.

8506
CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

ACHIEVEMENTS OF SOVIET GEORGIA PRAISED

Moscow IZVESTIYA in Russian 18 Apr 79 p 3

[Article by Grigol Abashidze, Hero of Socialist Labor: "A Priceless Legacy"]

[Text] Twenty-four hours before the start of the new year, 1979, high in the mountains of our republic Ingurskaya Hydroelectric Power Station, the largest in the Caucasus, was in operation. Three of its generators had been started. The turbulent, wild, and beautiful Inguri, filled by the melted snows of almost 175 glaciers, rushing down haphazardly from mountain slopes, has now become a working river. A flood of energy pours out to factories and plants, kolkhozes and sovkhozes. One million three hundred thousand kilowatts is the station's energy capacity. Watching the cold, lead-colored waters, neatly carried by the springtime Inguri, I recalled another hydroelectric power station, the Transcaucasian GES, whose construction was associated with the name of Vladimir Il'ich Lenin. This was the first step in completing his ingenious plan—GOELRO [State Commission for the Electrification of Russia]. Today it is difficult to imagine how it must have been in 1926, when in a gorge near Tbilisi along side the famous Dzharl Temple, standing proudly on the top of a rocky mountain, was erected a beauty of a dam. The creation of such a marvel became possible only with the coming of Soviet power. The Il'ich bulbs, which then blazed in the homes of Georgian peasants, illuminate our lives today. And when I am there and look at Transcaucasian GES, at the Dzharl Temple, they both appear to be symbolic monuments—one to the ancient history of Georgia, the other—to the history of the socialist state. Both have much to say.

Ten five-year plans have passed since the building of Transcaucasian GES. Today much of what once seemed extraordinary, has become commonplace, ordinary. Yet, all the same, one cannot help delight in the accomplishments our nation and our people made in this period. New and beautiful cities have sprung up, gigantic dams were erected by human

hands on the rivers of Siberia; railroad tracks were built through wild and dense forests and marshes; oil wells gush at the polar circle, where no man stepped before; we have entered outer space—all this is the result of the brotherhood of labor. In the close family of the Soviet republics Soviet Georgia shares the same joys and cares of all our people. The Communist Party and the Soviet Government value highly the achievements of the Georgian people—recently the republic was awarded six times the Challenge Red Banner of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet, the All-Union Central Trade-Union Council, and the Komsomol Central Committee.

Life in the republic is changing right before our very eyes. Only take for example the Upper Svanetiya—one of the mountain regions of Georgia. Once upon a time, to get there one had to pick one's way along a narrow path among enormous rocks. Below, in a gorge, roared and foamed the violent Inguri, while the path literally hung over an abyss. With the coming of Soviet power work began on transforming this path into a mountain road. Georgians have already walked on it. And now, with completion of construction of Ingurskaya GES and the running of power lines high in the mountains to carry electric energy to mountain settlements, right after them will be built a new asphalt road. There is no need to explain how a road is the source of life in the mountains. The construction of a relay tower was recently finished. Now mountain inhabitants will be able to watch television programs from Moscow and Tbilisi. The road will make it possible for thousands of tourists to acquaint themselves with the unique ancient art of the Svany, with historical architectural monuments—tall, slender towers and ancient temples, mostly in tact.

The inhabitants of Tushetiya return from the valleys to the old places. Life here was extraordinarily difficult. Produce and basic necessities were not easy to deliver here. Even shepherds, who pastured their flock of sheep the whole summer here, abandoned these places by winter. Now automobiles, delivering all kinds of goods, go there.

As in the entire country, our republic is constantly concerned about improving the living conditions of workers, and their well-being. Income in the republic, available for consumption and investment, in 1978 totaled 6 billion 278 million rubles. Today Georgia is a republic of diverse industrialization and highly developed agriculture. In the years of Soviet rule more than 1,000 new, largescale enterprises have been built here. Such industries as ferrous and non-ferrous metalurgy, chemical and many others, were built during the five-year plans.

I remember how the construction of the Transcaucasian Metallurgical Combine began in Rustavi, a city not far from Tbilisi. As a matter of fact, the city itself did not exist then. Construction began during the war, when the country was in dire need of metal. The main building of the future combine began to grow right in the middle of nowhere. True, in the 12th century, in the reign of Tamar, there was a city Rustavi, and it is assumed that the great Rustaveli was born there, because "Rustaveli" in the Georgian language means "from Rustavi". But this is history.

The new history of the city began during the terrible years of the Great Patriotic War. People of the most diverse nationalities—Georgian, Russian, Armenian, Belorussian, Ukrainian—made up the city. The young Georgian specialists were sent to plants in the Urals, Siberia, along the Volga. There they took courses in the science of making steel, worked as apprentices, and gained experience. International brigades, composed of foremen, who had come from the most diverse places of our country, undertook the first smeltings. Many of them now live and work there. The city grew. Now Rustavi is young, beautiful, modern. It is praised not only for its achievements in industry. Its theater, one of the best in the republic, is famous, recognized both in Moscow and abroad.

One may rightfully say that this city was born out of the friendship of our peoples. Indeed, it is so customary in our country for each great construction project to be a universal undertaking. Just recently from Tbilisi 400 Komsomol builders, representatives of the fraternal republics of Azerbaydzhani, Armenia, Georgia left Tbilisi for projects in Western Siberia. And this was only a part of the All-Union Komsomol Shock Brigade named 25-Years of the Virgin Land Project. The name of this brigade is symbolic because the virgin lands also became an example of the labor heroism of our people, of their friendship and unity. In a letter to the participants of the Komsomol Shock Brigade named 25-Years of the Virgin Lands, sent to the building projects of Western Siberia, Leonid Brezhnev wrote: "It is a joy to be convinced once again in the readiness of our young people to continue the feat of labor of the first settlers of the virgin lands, to worthily carry the baton of revolutionary, military, and labor traditions of the party and people."

Together with my fellow countrymen and writers I have been in various places of our immense country. I was there with the men drilling for oil in Tyumen. The winters there are severe, the frosts merciless, but the work does not stop, the people calmly pursue their business. My own countrymen—Georgians, having become oilmen and builders—are among these workers, engineers, and technicians. They, like the other people

from the south who work there, are not frightened by the frost. It is an inspiration to meet these people. I, for example, after my trip to Tyumen' composed a cycle of verses, which I dedicated to the workers of this bleak region.

When one converses with workers today, one realizes the truth that under Soviet rule a new man has been born, a man of a new society. Spiritually rich, he lives for the interests of the entire nation. This occurs to me whenever I meet the brigade leader and drifter Sh. Abakeliya, who is involved in the construction of Ingurskaya GES. This is a remarkable fellow. A master of his trade, intelligent, energetic, he is always, above all else, concerned about the total job; he is able to value the high calling of a worker. In him I see the best features of the Soviet worker, those which the Soviet way of life have inculcated in us. I know many such workers also at the ferroalloys plant in Zestafoni, where I often spend my time and where I was nominated a deputy of the USSR Supreme Soviet.

This also is characteristic of our state, where workers nominate a writer to the supreme organ of power. It demonstrates enormous respect, a measure of high esteem for a writer's work. I dearly value the trust shown to me and will strive to be worthy of it.

In these days of spring many of my colleagues—writers, artists from various fraternal republics will convene at the first session of the 10th convocation of the USSR Supreme Soviet.

We know each other very well, being familiar with each other's work. This is natural since a strong friendship binds our literature. Recently, meetings, organized by the USSR Writers' Union, were held in Moscow between Georgian writers and Muscovites. They began with an evening celebration in the Central Palace of Writers, dedicated to the memory of N. Tikhonov and P. Antokol'skiy, two poets, who have done much to strengthen the bonds of friendship between our peoples and writers. They composed beautiful verses about Georgia and wrote excellent translations of the Georgian classics and modern authors into the Russian language. And we are very grateful to them for this. We are grateful also to many other Russian poets and writers, through whose translations Georgian literature became highly regarded by the Soviet and foreign reader. Under Soviet rule the tradition of our friendship, inspired by the names of Pushkin and Lermontov, was revived. And these firm ties between us today are not only with Russian men of letters.

Long and dear has been our friendship with the Ukraine and the republics of the Transcaucasus. We live in a unified, multinational, fraternal country, and the creative achievements, spiritual values, fostered by artists, belong to the entire nation. Thanks to our great friendship Georgian literature, like the culture of all fraternal republics, has received the broadest recognition in the entire world.

The Ingurskaya GES dam shines brilliantly. The energy, generated by it, flows out on high tension lines. Meanwhile, the builders move on. After construction was finished the erection of a new hydroelectric power station was begun near the small village of Khudoni, further up the Inguri. At the site of the future GES on the memorial plate one can read: "Here will be built Khudonskaya GES. 30 December 1978."

Thus begins a new page in the labor heroism of the Soviet people.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

HIGH POWER TURBINE PRODUCTION EXPANDED

Moscow IZVESTIYA in Russian 29 Apr 79 p 2

[Article by V. Chicharov, Hero of Socialist Labor, fitter and assembler brigade leader of the Leningrad Metal Plant Association: "A Race for Creativity"]

[Text]

IZVESTIYA,

1929

Expansion of Turbine Production

Immense, new turbine shop starts operations
at the Leningrad Metal Plant

Leningrad, 15 Feb (Report telephoned in by our correspondent). On the grounds of the heavy machine building metal plant work has finished on construction of the largest facility in the Soviet Union for manufacturing high power turbines. The new, 200-meter length building houses powerful cranes and installations, imported from abroad. Fabrication of high power turbines has begun in the new building, including the first 22,000 kilowatt steam turbines for Elektrotok and Chelibetroy.

As called for in its socialist obligations, the workers of our association have manufactured in the first quarter of this year high-power, efficient turbines for Beloyarskaya Nuclear Electric Power Station, Syrdar'inskaya and Pechorskaya GRES sooner than planned; and delivered hardware necessary to start yet another generator of Sayano-Shushenskaya GES. Now our men have begun assembly of 300,000 kilowatt turbines for Irklinskaya GRES. Assembly of the next "200,000 kW" turbine for Nivoinskaya Thermal Electric Power Station continues, while a 500,000 kW steam turbine will be sent to the GDR.

There is no denying, the association has many customers. Indeed, our enterprise makes almost half the power equipment, produced in the Soviet Union. About one-third is exported.

During the last two five-year plans the former Metal Plant has been transformed beyond recognition. In front of the turbine shop buildings has grown a six-storied engineering facility. A high-powered experimental station has been built, a spacious shop for making rotors erected. Working conditions have been improved dramatically. Pneumatic tools and spring controlled pneumatic hammers are readily accessible during work. A device has appeared which makes it easier for the fitters to assemble the overflow pipes for all sorts of steam turbines—200,000 to 1.2 million kW.

Socialist competition acquired a special character during the present five-year plan. The slogan of the Leningrad workers—"From high quality individual work to high collective productivity"—found an ardent response among the turbine builders. Today in the shops of the association hundreds of productive, joint brigades of workers, technicians, and engineers are competing on the basis of detailed plans for raising production efficiency. The baton of high quality in the fabrication of each power generator will pass, as it were, from hand to hand—from the designer to the fitter and tester.

The fitters brigade of our section is making low pressure steam turbine cylinders. Each worker of the section has mastered related specialties, each can turn his hand to anything. Each fitter can not only lay out assemblies exactly as specified by the drawings, but he can also cut the metal and make welds.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

ACHIEVEMENTS IN ELECTRIC MACHINE BUILDING DISCUSSED

Moscow IZVESTIYA in Russian 29 Apr 79 p 2

[Article by V. Krotov, USSR Minister of Power Machine Building]

[Text] The plan for the future, long ago adopted by the State Commission for the Electrification of Russia, was accurate and wise. Over night the nation built those industries which were most needed to realize Lenin's formula: "Communism = Soviet power plus electrification of the entire country." The construction of machine building plants and electric power stations was the most important goal of the five-year plans.

And look at the result. Today the country produces in a day as much electric power as was produced in the entire year, preceding the adoption of the first five-year plan. Before 1924, before the adoption of the plan of the State Commission for the Electrification of Russia, the country, in general, had no native built power machines.

Today our country is a large supplier of power machines to the world market, and, in particular, of atomic power station equipment with 440,000 kW capacity generators.

In the Tenth Five-Year Plan, in accordance with the resolutions of the 25th CPSU Congress, a program of further expansion of power machine building is to be accomplished. Production of electric power in the nation totaled last year 1,202 billion kW-hr, having increased by 15.7 percent in comparison with 1975.

The first, unique hydraulic turbogenerator unit at Sayano-Shushenskaya GES was supplied to meet industrial demand. On the Yenisey is being built a gigantic hydroelectric power station with a planned capacity of 6.4 million kW. The auxiliary power units are in operation at a million kilowatts at the Chernobyl'skaya and Kurskaya AES.

The distribution of fuel and energy resources determines the modes of developing power, and, consequently, power machine building. Having adopted a plan to expand production of equipment for Nuclear Electric Power Stations, built primarily in the European part of the USSR, power machine builders here strictly adhere to the basic direction of increasing capacity and reliability of equipment for various types of nuclear electric power stations—both thermal and fast reactor. In addition, we have achieved enormous success here. The current five-year plan calls for adding to AES more than 13 million kW of power capacity.

Equipment at the Novovoronezhskaya Nuclear Electric Power Station is being assimilated. In order to build up operating time there, two low-speed (1,500 rpm) 0.5 million kW turbines have been installed. They make it possible to verify basic engineering solutions for million kilowatt turbines now being made for the Yushno-Ukrainskaya Nuclear Electric Power Station. A vigorous effort is underway to achieve series production of million kilowatt and higher power generators.

The solution to such pressing problems requires the rapid development of the industry's production base. This is why the construction of the giant of nuclear energy power machine building—Atomash—is being accelerated.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

ATOMMASH CONSTRUCTION PUSHES FORWARD

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 Mar 79 p 2

[Unsigned article: "With Increasing Speed"]

[Text] For the builders of Atommash February was not an easy month. As in January, the builders were not hampered by the weather. However, many of the production collectives successfully performed their assignments. The winners for January and February in the labor competition of millionaire collectives were L. Kurakin and V. Borodayev's brigade from SMU-9 [Construction and Installation Administration No 9] "Zavodstroy", and the brigade of A. Yevstyanin from "Yuzhstal'konstruktsiya". The highest output was achieved here, as well as a significant increase in the volume of construction and installation work in comparison with the same period of last year.

Overall in January and February the builders and installers of Atommash completed 17 million 478 thousand rubles worth of work. In order to meet the plan of the first quarter, about 19 million rubles worth of work—more than the figure for the two preceding months and then some—must be completed on plant construction. The review, "At a faster pace", published in issue No. 11 of SOTSIALISTICHESKAYA INDUSTRIYA, on Atommash, analyzes the present state of construction at the building site, uncovers shortcomings in the organization of operations, and points out ways of overcoming difficulties.

The address of the secretary of the party bureau managing mechanized operations in construction, No 2, B. Il'chenko, was devoted to labor discipline. Using his own collective as an example, he told how work on instilling in people a spirit of greater expectations of themselves and others was organized. This theme is continued in the article "Education by Past Glories" by the chairman of the council of brigade leaders of the main plant of Atommash, A. Savronskiy. "We constantly follow the work

of the brigade leader councils and the leaders themselves," he writes, "offering them help by word and deed. Not all, for example, turned out well for Mikhail Suprunovskiy from the main facility equipment shop. Individual workers ignored his opinion, failed to carry out instructions, broke discipline. We talked with many of them and they supported the new brigade leader. The brigade council punished those who did not want to follow established procedure. The matter was corrected."

Under the column "Fuel and Energy—A Strict Accounting" was published the article of the head of the production and technical department of TETs-2 /Heat and Electric Power Station No 27, V. Moiseyev, entitled "Realizing the Program." Workers of TETs-2 devote a lot of attention to conserving energy resources. Last year 353 tons of fuel and 525,000 kilowatt-hours of electrical energy were conserved here. However, the users of electrical energy and heat still tolerate much waste.

The director of the Volgo-Don Cafeteria Trust, V. Yefremov, discusses in his article the problems of developing public catering. Today public catering has become an enormous enterprise. The annual turnover in goods of the Cafeteria Trust exceeded 7 million rubles, while the Trust sold almost 5.5 million rubles worth of its own products. Before the end of the five-year plan construction is planned for another 24 public catering enterprises, which will add another 5,100 seats to an existing 7,400.

A meeting of the coordinating council, comprised of the supervisors of the production and scientific-production association and plants of the country, scientists, builders, party and trade union workers, was held at Atomash. Efforts in 1978 to help Atomash in every way possible were summed up.

In the newspaper column "Meeting at Your Request", a discussion took place with the respected artist of the Ukrainian republic, Vladimir Konkin, who plays the role of Pavki Korchagin in the six part television film "How Steel is Tempered". Various kinds of information is being published. Kuz'ma Volgodonskiy offers the readers the satire "A Real Fix".

8506
CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

TRANSFORMER PRODUCTION AHEAD OF SCHEDULE

Moscow IZVESTIYA in Russian 8 May 79 p 2

[Article by N. Korol', laborer, member of the party committee of the "Zaporozhtransformator" Association: "Good Quality and Ahead of Schedule"]

[Text] Zaporozh'ye. High quality, low cost, and easily maintainable transformers are especially important in regions of severe climatic conditions, where subzero weather and blizzards are frequent, and production sections are scattered many kilometers apart. This is why when we begin to assemble transformers for regions of Siberia, the Far North and Far East, the transparencies "Direct to Tyumen'", "Transformers Marked for Surgut" appear in the shop.

At such times the senior foreman, V. Litvinchuk, calls together the workers' supervisors. All the details and peculiarities of the manufacturing process are discussed. Now and then you will see V. Basov, the shop boss, making rounds. He does not approach the workers lest he distract them from their work, but takes a greater interest in the foremen and section heads, in whether all parts and materials have been supplied. He also does not approach the men because he knows each one is highly skilled, and that everyone, even on normal jobs, is conscientious about his work.

A guarantee of high quality labor for us means that the equipment is tested after each basic stage in assembly. The first stage, as we call it, is done by the work team of the experienced specialist M. Venzhin. The brigade attaches the transformer coils to the magnetic circuit, making the core of the unit. In the second stage G. Krepak's brigade solders the outlets, while the men of M. Korobovaya's brigade carefully insulate all contacts with special materials. The third stage is performed by V. Nikulin's brigade, which inserts the transformer core into a casing, lubricates it, and prepares the unit for testing. Then finishing touches are made to all components and parts, and the basic unit is packed.

Incidentally, the last stage is not so simple. As a rule, for Tyumen the entire load is packed for shipment by sea, and therefore the most conscientious workers are assigned to this job. Indeed, even an ordinary break in the polyethylene coating can cause serious damage to an electrical unit.

All our brigades are hard at work, giving their all. The mood in the shop is that our product must only be of high quality, that all orders should be filled ahead of schedule.

Since the beginning of the 10th Five-Year Plan the personnel of our shop have ardently supported the patriotic initiatives of the nation's industrial enterprises—"Five-Year Plan in Four Years," "Work without Slowdowns," "A Personal Statement of Warranty". Many have taken the obligation of fulfilling the five-year plan by the 109th birthday of V. I. Lenin, promising to keep their word. Workers N. Kirichenko, N. Neumyvako, N. Gorbenko, L. Yakimenko, V. Kas'yanov are already working on 1980 targets. Foreman O. Babkov's Komsonol shift is in the forefront of competition. In general we now are working six months ahead of the planned quotas. Playing a big role in this has been a universal striving not only to exceed quotas per shift, but also to do everything necessary to prevent any shift from falling behind.

The recent manufacture of seven transformers for Glavtyumenneftgaz [Main Administration of the Tyumen Petroleum and Gas Industry] was exemplary. Assembly stages and tests—the last in the control laboratory headed by V. V. Kuznetsov—were completed one after another ahead of schedule. All instruments recorded the sure, accurate operation of the units. Each transformer was certified and prepared for shipment. We must deliver this year more than 20 transformers of different capacities to meet all the orders of Glavtyumenneftgaz. Shop personnel are working harder than ever to see that the transformers are made well and ahead of schedule.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

WORK AT ARMENIAN AES DESCRIBED

Yerevan KOMMUNIST in Russian 18 Apr 79 p 1

[Article by S. Markosyan, correspondent for KOMMUNIST: "They're from Kol'skaya [AES]"]

[Text]

TELEGRAM

From Kolpino, Leningrad Oblast'. On the 30th of March the reactor vessel for unit No 2 of the Armenian Nuclear Electric Power Station was shipped on car No 9928802 of the Transcaucasian Railroad, destination Oktemberyan. Izhorsk Machine Building Plant

Sergey Sadovedov's full work brigade arrived at work exactly at 17:00. Temporary lighting illuminates a labyrinth of corridors and narrow passageways around the reactor well. Ducts, tubing of the welding generators, a great number of various equipments, and these steam generators—enormous cylinders mounted on a massive base, where could one turn?

Everything had been prepared by the day shift led by Yuriy Kunilov—the chief manager and organizer of work for the second shift.

Without fuss and with little talking, at times with a slight nod to the right or left, the fitters communicate with one another. Kolya Shishkanov, Yasha Petrochenko, Aleksandr Varankin, and all the rest are first class foremen.

Towards 23:00 hours they start to fasten the supports of the hydraulic shock absorbers of the main circulation and electrical pump system of the steam generators (GTaEN). GTaEN-317 is a modification of this AES equipment, designed to work under severe seismic conditions.

The supports of the GTsEN base are lowered into the steam generator housing and are set in place according to plan, the pump " housings " are welded on. The pump itself, weighing 55 tons when assembled, must be mounted with no less than 5 mm error.

I sense that towards the end of the shift the men are getting tired, an indication not only of the enormous strain—the work site is extremely crowded and special safeguards have been imposed, but also the unrelenting pace, without any unscheduled breaks.

In the morning I again peeked into the passenger car, standing at the siding—the headquarters of the work site of the Kol'skiy assembler's section of the Northwestern Trust of Power Engineering Capital Construction at the Armenian Nuclear Electric Power Station.

"We are from Polyarnyye Zori, that is our hometown at Kol'skaya Nuclear Electric Power Station," says the head of the building site, Valeriy Aleksandrovich Yefimov. "We mounted the first unit here at Metsamor, and now are working on the second."

Valeriy is young, like the other brigade leaders. He just replaced Vasily Kistin's shift, which, like the preceding shift, will prepare the work for the evening shift.

A spirit of togetherness, a deep sense of responsibility set the entire collective of assemblers from Kol'skiy apart. Precisely written job orders and a thought out systematic work schedule control operations at the work site. Each labor hour, the skills and abilities of each member of the brigade are registered.

At my request the volume of work performed by Sadovedov's brigade was calculated.

"About 150 percent of target completed," the head of the work site summed up. All completed work is recorded in a journal.

I search for the "root", the basis for overfulfillment of the shift's quota. The supervisors of the building site have captured an apparently hidden reserve. During the day the cranes are used more for handling building materials, concrete, reinforcement iron, and equipment. On the evening shift, while the builders rest, the assemblers of "Sevzap-energomontazh", "Gidrosantekhmontazh", and "Kavelektromontazh" take full control of the cranes. Therefore, the quotas given to the brigades are based on maximum loading of the lifting and hauling equipment. The output of the crane operators on the second shift is 20-25 percent greater than on the day shift.

The distance from Polyarnyye Zori to Metsamor is about 4,000 kilometers. By the calendar it is April. Above the Arctic Circle the mercury in the thermometer drops below zero at night, while here it is hot. In the Ararat valley orchards bloom, the greenery of the winter crops stands tall, the grape vine spreads its decorative leaves, thunder clouds clap.

It is hot at the building site of the second reactor of Armenian AES. The construction schedule is inexorable. Suppliers of equipment and materials try to find ways to ship ahead of schedule.

The builders of the second reactor have promised to have it ready for operation earlier than December 8. Yefimov's crew from Kol'skaya AES have given their word to finish all the work assigned to them sooner than required.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

FACILITY IDLED BY LACK OF POWER

Moscow PRAVDA in Russian 10 Apr 79 p 2

[Article by V. Khudayev: "Gone with the Wind"]

[Text] A short article, published in PRAVDA, dated 17 April 1977, briefly titled "Blown Away", described how at the Sinychikh station of the Sverdlovsk Railroad a "Vyatka" installation for unloading dusting fertilizers had been idle for a long time. According to the joint schedule of the Ministry of Railways and the All-Union Agricultural Equipment Association this installation was supposed to start operations as long ago as March 1973. The basic construction work was finished and the equipment installed, according to the article, but the "Vyatka" stood idle. Everything depended on a supply of electric power. The Sverdlovskaya Oblast' Sel'khoztekhnika Association had not solved the problem of financing the power supply.

After publication of the critique, the matter seemed to move off dead center. The deputy chairman of the oblast' Sel'khoztekhnika, N. Sokolov, informed the editors that the funds for the construction of a power line at the station had been allocated to the Sverdlovsk Agriculture-Chemical Trust, and that work would soon be completed. This reply was published in the 22 June 1977 issue of the newspaper.

A little less than two years have gone by. What has changed at the station. "The way our grandfathers unloaded fertilizer—with shovels—was the way we did it," write truckers Yu. Chereannykh, Ya. Ushakov, and their comrades, "and is how we do it now. It hurts when I see the "Vyatka" rusting. It should have made our work easier."

"Yes, the directors of the oblast' association let us down; they deceived the newspaper's readers," laments the head of the mechanized remote-control loading and unloading operations of the Yegorshinsk Department of the Sverdlovsk Railroad, V. Belousov. "There appears to be no end to the long-term construction project."

There is also another factor—even if the electric power were provided, the "Vyatka" still would not work because a significant part of the equipment has become useless due to careless storage, and another part has been lost without a trace. In short, the state has suffered a significant loss—for the installation costs more than 100,000 rubles. And this is not all. Mechanized reprocessing of a ton of fertilizer costs a third that of manual processing. With mechanized processing the wind will not carry the fertilizer away. It is not difficult to calculate how much would have been saved over six years, if the "Vyatka" had been working. The loss of morale, suffered by the workers, in unloading the fertilizer, cannot be measured.

Thus, inefficiency and poor management continue to throw away state funds.

8506

CSO: 1822

ELECTRIC POWER AND POWER EQUIPMENT

BRIEFS

FIRST ROGUN TUNNEL—Tadzhikistan—The first tunnel has pierced through the cliffs at the building site of Rogunskaya GES. The mountain river Obigarm will be diverted through the three hundred meter subterranean aqueduct. Meanwhile, construction machinery and loaded trucks will move along the dried river bed. This operation has made it possible to avoid construction of three bridges on a short, but difficult mountain road. Rogunskaya GES is being built in a gorge. Under these conditions the construction of auxiliary tunnels is a unique way of diverting mountain streams, and of laying roads. In all, 60 kilometers of subterranean tunnels will be built. The new electric power station at Vakhsh will be built after Nurekskaya GES to provide power to the growing enterprises of the Southern Tadzhik Regional Industrial Complex. [Text] [Kiev PRAVDA UKRAINY in Russian 6 May 79 p 1] 8506

HOUSING FOR BUILDERS—Ryazanskaya Oblast'—An enormous power complex is being built on the South Bug. The collective of Novomichurinsk Large Panel House Construction is making its own contribution to the project. It has provided the parts for dormitories, distinguished by convenient room layout, and internal and external finishings. More than 500 workers can be housed here. In the fourth year of the five-year plan parts will be produced for another four dormitories, intended for electric power station builders. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 Mar 79 p 2] 8506

SETTLEMENT FOR BUILDERS—Makhachkala—Plans for the building of a housing settlement for the builders of Irganayskaya GES have been finished at the Daggrazhdanproyekt [Dagestan Civil Engineering] Institute. A series of hydroelectric power stations will be built on the Sulak River. One of these is the Irganayskaya GES High Dam. The settlement, which will house more than 6,000 builders, has been successfully "inscribed" in the complex mountain topography. [Text] [Moscow IZVESTIYA in Russian 18 Apr 79 p 1] 8506

FUELS AND RELATED EQUIPMENT

UKRAINIAN AND BELORUSSIAN PEAT WORKERS ADOPT COMMITMENTS FOR 1979

Moscow TORFYANAYA PROMYSHLENNOST' in Russian No 4, Apr 79 pp 2-4

Socialist Commitments of the Collectives of the Peat Enterprises and Peat Briquet Plants of the Belorussian SSR Ministry of the Fuel Industry for 1979.

[Text] The unanimous, solid support by the people of the political course of our Leninist party is the reliable foundation for progress and the guarantee that the planned projects will be implemented. They will be implemented by the will of the party, labor of the Soviet people, and in the name of their welfare and happiness. From a speech of Comrade L. I. Brezhnev at a meeting with the electors of the Moscow Baumanskiy electoral district.

The collectives of the peat enterprises, and the peat briquet plants of the Belorussian SSR Ministry of the Fuel Industry, by implementing the historical decisions of the 25th CPSU Congress have marked with accelerated labor the 60th anniversary of the formation of the Belorussian SSR and the Belorussian Communist Party. The plans and socialist commitments for 1978 and the 3 years of the Five-Year Plan for the total volume of production, realization of industrial products, labor productivity and production of peat briquets have been fulfilled ahead of schedule.

Guided by the decisions of the November (1978) CPSU Central Committee Plenum, the statutes and conclusions stated in the speeches of the General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev at the plenum, the labor collectives of the Belorussian SSR Ministry of the Fuel Industry, striving to mark the fourth year of the Five-Year Plan with new labor achievements have adopted the following socialist commitments for 1979.

1. By perfecting socialist competition under the motto "rhythm-precise, rates-high, quality-excellent" and organization of labor by means of improving the

use of production facilities and equipment, increase in the technical level of production the quality of work, to fulfill ahead of schedule, by 1 September 1979 the plan for 4 years of the Five-Year Plan for the total volume of production, and by 15 September 1979, for the realization of production. To produce above the plan 24.5 million rubles of products and realize them by 23.5 million rubles. To fulfill the state plan of 1979 for a total volume of production of industrial products by 15 December, and realize it--by 20 December. To produce in 1979 200,000 T of peat briquets above the plan, and 1 million T of peat for agriculture. To increase labor productivity by 1% and by means of this guarantee the entire increase in production volume.

2. In order to provide the peat briquet plants more completely with quality raw material in the 1979 season to extract no less than 5.1 million T of peat for briquetting.

3. To guarantee quality preparation of 2,038 ha. of new areas for peat extraction.

4. To improve the efficiency of peat briquet production, its technical level and quality of the manufactured products, in order to:

put into operation in the first half year of 1979 a pneumatic gas drying unit at the 23rd CPSU Congress Peat Briquet Plant, and develop the output of the pneumatic gas dryer at the peat enterprise "Krasnaya Zvezda";

replace the PGBS dryer with the Tsemag dryer in the briquet shop of the peat enterprise Sergeyevichskoye and the production equipment in the peat briquet shops Vetkovskiy and Karolina;

increase by 1% as compared to 1978 production of briquets with moisture content up to 16%, and ash content up to 15%.

5. In order to guarantee uninterrupted operation of briquet plants, power plants, industrial enterprises and boiler houses to create at all the enterprises emergency warehouses on the line in calculation for their stable operation 15 days in the case of a temporary stoppage in transporting peat from the mining fields.

6. To master the preparation of and introduce into production six new machines for mechanization of manual labor created from the research efforts of Belniitoproyekt.

7. By means of introducing progressive production processes and new technology to reduce the specific number of workers involved in manual labor by 4.7%, increase the degree of mechanization and automation of labor to 67.3%, and reduce the net cost of manufactured products by no less than 350,000 R.

8. To obtain an annual saving of 900,000 R by means of introducing inventions, efficiency expert suggestions and borrowed innovations from the sources of scientific and technical information.

9. To develop and introduce individual components of the branch system of production quality control.

10. To obtain from the introduction of results of scientific research and experimental design work an economic effect of no less than 1.35 R per 1 R of outlay.

11. By means of introducing leading technology, progressive specific norms for consumption of raw materials and materials, labor methods, reduction in losses at all stages of production to save 9,000 T of comparison boiler-furnace fuel, 24,000 g-cal of heat energy, and 5.5 million kwh of electricity.

12. To continue socialist competition of the collectives of the enterprises and construction sites of the Belorussian SSR Ministry of the Fuel Industry with the collectives of the enterprises and organization of the Administration of the Peat Industry under the Lithuanian SSR Council of Ministers.

In adopting the socialist commitments for 1979 the workers of the fuel industry of the republic will apply all efforts, knowledge and accumulated experience to fulfill and overfulfill for each collective the assignments for the fourth year of the 10th Five-Year Plan and the plan of 4 years.

The socialist commitments were discussed at the general meetings of the collectives of the enterprises and were approved at the joint meeting of the board of the Ministry of the Fuel Industry and the Belorussian Republic Committee of Trade Union Workers of Powerplants and Electrical Engineering Industry.

Socialist Commitments of the Workers' Collectives of the Enterprises and Organizations of the Republic Industrial Association for Mining and Processing of Peat UkrTorf of the Ukrainian SSR Ministry of Local Industry for 1979.

Having engaged in socialist competition for the early fulfillment of planned assignments for the 10th Five-Year Plan the collectives of the enterprises UkrTorf have attained certain successes in improving the technical and economic indices of production. In the 3 years of the Five-Year Plan products have been manufactured above the plan by 2.1 million rubles, 0.86 million T of peat have been extracted, and 20 million rubles worth of products have been manufactured for agriculture.

By fulfilling the decisions of the 25th CPSU Congress, and the November (1978) plenum of the CPSU Central Committee, and by warmly approving the conclusions and instructions stated in the speech of the General Secretary of the CPSU Central Committee, Chairman of the USSR Supreme Soviet Presidium, Comrade L. I. Brezhnev at the plenum, the collectives of workers of the industrial peat association, having started their labor watch adopt the following increased socialist commitments for 1979.

1. Based on further perfection of organization of labor and control, improvement in the use of production facilities to fulfill ahead of schedule on 26 December the annual plan for the volume of production and realization of products, and before the end of the year to develop and realize products above the plan by the sum of 0.5 million rubles.
2. To extract above the plan 300,000 T of peat, including 50,000 T of lump peat for the needs of the population and communal-general consumers.
3. To manufacture products for agriculture by 6 million R.
4. To improve the quality of peat products as compared to the established calculated norms: for moisture content by 1% and ash content by 0.5%.
5. To comprehensively mechanize the production processes of two peat briquet shops and the section of peat extraction.
6. To introduce for the extraction, drying, gathering, transporting and auxiliary work 280 units of special production equipment.
7. To modernize 258 units of outdated production equipment.
8. By developing the creative sense of workers and engineering-technical workers to introduce into production efficiency expert suggestions with general economic effect of 300,000 R.
9. As a result of introducing new techniques, perfecting the organization of labor and production to overfulfill by 0.8% the annual plan for the growth in labor productivity, and to guarantee no less than 91% increase in the volume of industrial production by means of improving labor productivity.
10. By means of the rational use of working time, ordering the power and illumination loads, improving the operating pattern of the intra-plant electrical networks and power aggregates, and perfecting the norming of the specific consumption of fuel and lubricant material for the operation of machines and equipment to save 2.315 million kwh of electricity and 4,590 tons of comparison fuel.
11. In order to further improve the efficiency of production to encompass 1,370 workers with measures for scientific organization of labor.
12. To recultivate in an economic way and transfer to national economic use 1,895 ha of peat fields.
13. By means of implementing organizational and technical measures and the timely assimilation of capital investments to guarantee the putting into operation of production facilities for the output of 37,000 T of briquets and extraction of 465,000 T of peat per year.
14. Based on comprehensive plans of economic and social development of the enterprises to assimilate the resources for carrying out measures to improve production conditions and work safety in the sum of 227,000 R.

15. In order to improve the residential-general conditions of the workers to guarantee the putting into operation of 5,565 m² of dwellings.

16. To train and improve the qualification of 500 workers, including to train 275 workers for second professions. To train through a course system 450 workers of mass professions. To improve the qualification of 150 engineering and technical workers.

17. To continually perfect the organization of socialist competition, and to develop further cooperation with the peat enterprises of the Russian, Belorussian, Latvian, Lithuanian, and Estonian union republics.

The socialist commitments were discussed and adopted at the general meetings of the collectives of the Ukrtorf enterprises.

Appeal of Workers, Engineering-Technical Workers and Employees of Shumskiy Peat Briquet Plant of the Podol'sk Peat Association to All Workers of Peat Briquet Plants and Peat Enterprises of the Ukraine.

The collective of the Shumskiy peat briquet plant responding by action to the historical decisions of the 25th CPSU Congress in the past year successfully coped with the fulfillment of the plan and increased socialist commitments.

They fulfilled ahead of schedule the plans for the 3 years of the Five-Year Plan for the realizable and wholesale products, extraction of peat and production of peat briquets. One hundred and ninety five thousand T of peat were extracted above the plan for 3 years, over 6,000 T of briquets were manufactured, and 475,000 R of products were realized. The average annual growth in labor productivity was 4.5%.

The successful fulfillment of the plan assignments and socialist commitments to a great extent was promoted by the introduction of patriotic initiatives of the leading enterprises of the country and innovators of production of Ukrtorf. The initiative of the workers of the Rostovskaya oblast "work without lagging," and the L'vov system of quality control were widely supported in our collective. Their putting into practice had a positive effect on the results of work, and was the foundation for further improvement in productivity efficiency and labor quality.

The new rise in political and labor activity of the workers of the plant were produced by the decisions of the November (1978) CPSU Central Committee Plenum, the materials of the 10th session of the USSR Supreme Soviet on the state plan of economic and social development of the USSR for 1979.

Guided by the conclusions stated in the speech of the General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, Comrade Leonid Il'ich Brezhnev at the November (1978) CPSU Central Committee Plenum, and striving to work more effectively, with the maximum output the

collective of the plant developed socialist competition of the workers for the fulfillment of the planned assignments for the fourth year of the Five-Year Plan ahead of schedule, before 25 December 1979 for the realizable and wholesale production, and before 20 December for the production of briquets, 10 days before the established schedule--for the extraction of high-quality peat for briquetting. By means of the maximum use of labor and internal reserves of production, complex mechanization and automation of production to guarantee the overfulfillment of planned assignments for the growth in labor productivity and profit.

Dear Comrades!

The collective of the plant appeals to all workers, engineering and technical workers and employees of the peat briquet plants and peat enterprises of Ukrtoif to persistently struggle to improve the productivity efficiency, growth in labor productivity, and increase the volume of production of products with high quality with the least outlays;

with new energy to develop broad competition of the collectives for the further improvement in industrial efficiency, and the creation of the best production-general conditions of the workers;

by means of maintaining in a model condition the production areas and the drying network to guarantee high-production use of the set of peat extracting machines and mechanisms for preparing in the necessary quantities high-quality raw materials for briquetting, and at the same time to create the necessary conditions for stable operation of the plants;

to even broader evolve the struggle for mastering theoretical knowledge, the leading practical experience, for the perfection of professional skill, and to develop to the maximum initiative and innovation, to make rational use of working time, and to save each kilogram of metal, fuel, and each kilowatt-hour of electricity.

We will do everything that depends on us in order to make the fourth year of the Five-Year Plan the year of shock labor. We will successfully fulfill and overfulfill the plan of the 10th Five-Year Plan!

For each worker--precise rhythm, high rates.

The appeal was discussed and adopted at the working meeting of the collective.

COPYRIGHT: Izdatel'stvo "Nedra", "Torfyanaye promyshlennost'", 1979

FUELS AND RELATED EQUIPMENT

UDC 622.331:876.2

ZHITOMIR PEAT ASSOCIATION FULFILLS PLAN FOR THIRD YEAR

Moscow TORFYANAYA PROMYSELENNOST' in Russian No 4, Apr 79 pp 7-9

[Article by L. N. Shtraks, head of the production-technical section, Zhitomir peat association: "Labor Watch of the Peat Workers"]

[Text] Valuable experience of the complex solution to questions of growth in labor productivity, production efficiency and quality of work has been accumulated by the collective of the enterprises and production sections of the Zhitomir peat association.

The workers, and engineering and technical workers of the association under complex weather conditions have fulfilled the plan for the third year of the 10th Five-Year Plan for all technical and economic indices.

The plan for realization of commercial products was completed on 14 December, and additional products were realized in a sum of 500,000 R. Industrial products were produced above the plan by 300,000 R. The plan for peat extraction was fulfilled by 108%, and for the production of peat briquets by 100.7%. The entire increase in the volume of production was guaranteed by means of improving labor productivity.

The enterprises of the peat association fulfilled the commitments for mastery of construction and assembly work by an economic method by a sum of 730,000 R.

The assignments were realized for the recultivation and transfer to land users of worked areas.

The economic effect from introducing efficiency expert suggestions and the plan of new technique was 65,400 R. There was a saving of 281,000 kw-h of electricity and 1,671 g-cal of heat.

The assignment for 3 years of the Five-Year Plan was fulfilled for the manufacture of industrial products, and commercial products were realized above the plan by a sum of 2.5 million R.

The attainment of these results promoted by the serious organizational work of the party, trade union organizations, and engineering and technical workers for the evolving of socialist competition in the labor collectives of the association.

At the enterprises active competition was organized between the collectives of the brigades linked by a single production chain from the preparation of raw material bases to the output of peat briquets.

The association made a deep and comprehensive analysis of the work in the extremely unfavorable season of 1977, and revealed the deficiencies in the preparation of peat fields which made it possible in 1978 to provide the peat briquet plants with quality raw materials. The work was conducted in two directions:

deepening and cleansing of the drying network and regulation of the water intakes;

installation on the peat fields of mobile pumping stations with drive from the power take-off shaft of a tractor with output of 300-700 m³/h.

This made it possible to actively dispose of water through the entire season and extract peat already on the third day after the rains stopped.

In order to determine the level of preparation of the peat extracting equipment and raw material bases before 15 April a test run of all the equipment on the peat fields was organized which made it possible to reveal shortcomings in the preparation and to eliminate them in the time remaining before the start of the season.

In the preparation of production areas for the season of 1978 on the suggestion of the efficiency experts of the Ozeryanskiy peat briquet plant of V. K. Butskiy, V. I. Makarchuk, and A. A. Litvinenko the drying network was reconstructed on the fields of the sections Korma, Ozeryany I and Ozeryany II, which made it possible to extract peat on 150 ha of not very suitable areas.

A great contribution to the fulfillment of this work was made by the shopworker of communist labor, excavator V. S. Marchuk. He fulfilled the annual plan 17 days ahead of schedule and developed above the plan 5.2 thousand m³ of soil, and mastered two related professions. On his initiative in 1978 the norms for working were reexamined and increased by 12%. For high production indices V. S. Marchuk was awarded the badge "Victor of Socialist Competition."

For the first time in the association complex brigades were introduced for extraction of peat that attained during the season high production indices.

At the Bronitskiy and Ushitskiy peat enterprises with comprehensive labor organization losses of work time were reduced, labor productivity was increased, and better use was made of technology which made it possible in the elapsed year to overfulfill the plan for production of briquets in the Bronitskiy peat association by 2,400 T, and the Ushitskiy peat enterprise by 2,300 T.

The competition of mechanics that has been conducted for already 3 years and which is realized in two stages justified itself.

The first stage includes theoretical training of the mechanics (with exams) and the quality carrying out of repair of production equipment. The second is fulfillment of the entire set of work for peat extraction.

A position on the competition was developed. For the winners 35 prize places were set up with monetary awards.

The winners of the competition taking first place are awarded the title "best mechanic for peat extraction," and their photographs are placed on the board of honor of the association. The photographs of the prize winners of the competition taking second and third places are placed on the board of honor of the enterprises.

In the season of extraction 1978 the winners of the competition who took first place were mechanic of MTF-13 of the Buchmanskiy peat briquet plant N. I. Levchenko and the Ozeryanskiy peat briquet plant V. V. Melnik, mechanic of MTF-41 of the Buchmanskiy peat briquet plant V. P. Sitaylo, mechanic of MTF-71 of the Ozeryanskiy peat briquet plant G. M. Veyko, and mechanic of MTF-21 of the Ushitskiy peat enterprise I. Kh. Ivanenko.

Having engaged in the all-union socialist competition for early fulfillment of production assignments 20 leading workers fulfilled their socialist commitments of the 3 years of the 10th Five-Year Plan by the anniversary of the USSR Constitution. Among them are the shopworkers of communist labor V. I. Makarchuk, V. P. Sitaylo, G. M. Veyko, I. P. Trots, and O. F. Kiriychuk.

The complex brigade of N. M. Gavrilovskiy of the Ovruchskiy section of the main peat enterprise for extraction of milling peat for agriculture fulfilled the plan for the 4 years of the 10th Five-Year Plan, and extracted above the plan 20,700 T of peat. Working under the motto "the maximum load for technology" in the 3 years 16 T of diesel fuel were saved.

Supporting the initiatives to fulfill the 10th Five-Year Plan in 4 years 19 shopworkers and innovators of production and 3 complex brigades adopted commitments to fulfill the 10th Five-Year Plan by the 110th anniversary of the birthday of V. I. Lenin.

The toilers of the enterprises of the Zhitomir association are constantly searching for unused reserves and possibilities for further increasing the volumes of production, and fulfilling the socialist commitments and oncoming plans of the fourth year of the 10th Five-Year Plan.

COPYRIGHT: Izdatel'stvo "Nedra", "Torfyanaye promyshlennost'", 1979

9035

CSO: 1822

FUELS AND RELATED EQUIPMENT

REAL REASONS REVEALED FOR OFFSHORE DRILLING LAG

Baku VYSHKA in Russian Mar 79 p 2

[Article by V. Gol'tsev: "If You Look at the Root..."]

[Text] The collective of the Serebrovskiy Oil and Gas Mining Administration last year provided the country with over 253 million cubic meters of gas above the plan. Its daily average extraction rose by 693,000 cubic meters. Today the fields of Peschaniy-more and Bakhar that are being worked by this administration provide more than half of all the blue fuel mined in the association "Kaspmorneftegazprom."

However, in increasing the gas mining the oilmen at the same time have not coped with the assignments for oil already for a long time. This delay that has already become chronic, strange as it may seem, is associated with the young promising field Bakhar whose multistratal bed has not yet been explored even to the end.

This is the picture that has formed here during the past year. The wells maintained by the collective of the shop for oil and gas mining No 2 at the Bakhar field underproduced together with gas condensate over 62,000 tons of oil. It is true that due to the above-plan fuel of the collective of the first shop the debt of the administration was successfully reduced 1.5-fold. But the situation in the second shop, the leading section of the Oil and Gas Mining Administration continues to remain very stressed. In the two months of 1979 it has already underproduced for the plan 34,260 tons of oil. What are the hidden reasons for the delay?

A conversation with the head of the Oil and Gas Mining Administration F. Musayev, naturally turned to the specific nature of the work of offshore oil workers, and to what efforts they are applying in order to end the interruption. Of course it would be incorrect not to see beyond the critical evaluation of the work of the administration collective that positive experience which makes it possible, for example, for the oil workers of the first shop that maintain the wells of the Peschaniy-more field to fulfill and overfulfill set tasks.

Last year here it was planned to obtain 80,000 tons of additional oil from the carrying out of geological measures, and from technical measures--60,000 tons.

Actually 120,000 and 74,200 tons of fuel respectively were obtained. The summary extraction for one efficient measure exceeds by 450 tons the mean effective measure on the whole for the association.

This success was preceded by a large volume of hydrodynamic and geological-geophysical studies. Studies on wells by the method of impulse-neutron logging to determine the current oil and gas saturation of the collectors and to select an object for sampling proved themselves especially well. In 1978 due to such research the quantity of unproductive samplings was successfully considerably reduced, and over 130,000 rubles were saved.

The oil workers have extensive experience also in the area of introducing gas lift valves. This progressive technique permits them not only to operate wells on the optimal pattern, but also to annually save up to 60 million cubic meters of compressed gas and 20,000 meters of compressor pump pipes.

Having created a good reserve last year the collective of the shops successfully began work this year as well. In two months alone 5,570 tons of oil and about 11 million cubic meters of gas have been mined in addition to the plan.

"As for Bakhar," states F. Musayev, "it is lagging for many reasons. Some do not depend on us, others depend on us."

Among the reasons that do not depend on the Oil and Gas Mining Administration the head of the administration in the first place lists the circumstance that last year the collective did not sufficiently obtain about 57,000 tons of oil only from the wells no longer being drilled. Of course it is impossible not to agree with this, and we will describe the work of the drillers later.

Now we should dwell in more detail on the reasons for the internal order that, strictly brought the Oil and Gas Mining Administration to the delay. The question is of the premature flooding of the gushers in the Bakhar field and their knocking out of operation.

Take for example well No 105. From the tenth level of the productive layer in its time it gushed an output of 100 tons of pure oil per day. Then it was unexpectedly flooded and it had to be switched to operation of the fifth productive level. Daily No 105 began now to yield 30 tons of condensate and 400,000 cubic meters of gas. But it did not operate very long. The well again was flooded and now awaits the arrival of the major repair brigade.

Last year at the Bakhar field a total of four high-output wells broke down. The situation has not been improved this year. In January well No 50 was flooded which operated with an output of 100 tons of oil per day. A threatening situation has been created at well No 14 where a sharp reduction in oil output has been noted.

The geologists of the administration consider flooding of the wells to be completely natural, explaining this phenomenon by the location of the well

near a water-oil contact. There is a certain fraction of truth in this explanation. But then by itself the question arises of why for example, well No 56 was flooded that was drilled on the podkirmakinskaya series, and which is located far from the oil-water contact? One can observe an analogous picture also in many other wells that also do not neighbor with it.

Thus it seems that there are other, more weighty reasons for the significant shortage of oil on the Bakhar field. In our opinion they primarily are concealed in the low technical efficiency of its working. It can seem strange, but despite the fact that the Bakhar field has already been worked for 10 years here the production pattern has been approved only for 3 of the 36 wells in operation. The reason? There are no appropriate control and measuring instruments. And operation of wells without approved production patterns, and without engineering and geological substantiation also results in those sad consequences of which we have spoken above.

The elevation of oil mining in the second shop is also seriously inhibited by the circumstance that the Bakhar pipelines do not satisfy the current requirements for the working of a field. The pipe system existing here for the collection and transporting of fuel to the mainland was rated for the high energy of the bed and pure fuel without admixture of liquid. Today this is no longer the state of the deposit. The presence of water in the well products results in the fact that in winter hydrates are formed in the collectors which actually paralyzes the operation of the offshore field.

The situation could be corrected if the association "Kaspiyeftegazprom" that includes the Serebrovskiy Oil and Gas Mining Administration had thought in time about the compilation of a new pipeline plan for the field. But this was not done, and only comparatively recently was a simplified pipeline variant adopted that included reconstruction of the group measuring unit and construction of the sixth pipeline. The idea of reconstruction was as follows: to attain separation of the liquid from the gas, group the wells according to the nature of the product extracted, and then transport the oil and gas in individual pipelines.

Time will show how this system will operate. For the present at the group measuring unit where I had occasion to visit the oil workers are on an uneasy watch. Every now and then the pressure rises threateningly on the delivery lines of the wells. Then the foremen and operators on duty rush to the gate valves covered with frost and feverishly transfer the well product into the steel channel of the collectors that are not clogged with hydrate.

"The work is not easy," states foreman G. Adamov, "and it is not safe. It is worth it to be perceptive and avoid misfortune."

The SHU-4 trust "Azorneftestroy" is reconstructing the group measuring unit. The work here must be finished by the end of April. The schedules are being tightened but there is still a lot of work.

Construction of the new pipeline Bakhar-mainland is also slow, as well as certain other important objects of the field pipeline.

One can see from the following example what this will lead to. For a long time well No 106 where drilling had been finished operated not on the pattern due to the fact that the delivery line to the group measuring unit had not been laid in time. No 106 was connected to the line of another well, and the oil workers lost many tens of tons of oil per day for this.

The brigades of capital repair of the Oil and Gas Mining Administration have been called upon to play a great role in the intensification of mining at Bakhar. Last year the repairmen overfulfilled their assignments. They have also begun the new year well. However of the 16 brigades only 5 have coped with their commitments. The fact that in two months standstills have comprised 39.5% of the total balance time causes serious concern.

I had occasion to be at well No 103 when the brigade of foreman M. Tairbekov began to repair it. But instead of immediately starting lifting the pipes it began to fulfill preparatory operations.

"For sure," states the foreman, "we will lose about 3 hours. This is nonsense, we are making up for work. But it is very difficult to be on schedule when at times for whole days you wait for the transport of solar oil or other materials."

The foreman was justified in complaining also about the quality of the technology that they are already armed with. In particular, the hoists of AzINash-43P have not been adapted for repair of deep offshore wells.

Now we will return to the drillers against whom the head of the Oil and Gas Mining Administration F. Musayev has serious claims. First of all it should be noted that the tunnelers far from always bring the wells to the planned depth. And it is not at all accidental that although last year 10 wells were put into operation (2 above the plan) the planned volume of oil mining for them was not successfully obtained. In addition, the quality of the wells obtained from drilling often does not meet the technological requirements. For example, due to the poor quality of the plugging work well No 398 after short operation with yield of 100 tons of oil per day switched to gas and water.

The situation is no better this year. Instead of the planned three wells actually two have been put into operation--No 106 and No 70 outside the plan. The shortage of their output has already comprised over 7,000 tons of oil.

Currently the association "Kaspmorneftegazprom" is taking measures in order to correct the situation in the Serebrovskiy Oil and Gas Mining Administration. And now it is extremely important that after each planned measure specific steps follow so that the collective of the administration is given efficient organizational and technical help in eliminating the delay in solving the many problems facing them.

FUELS AND RELATED EQUIPMENT

SAMSONOVSKAYA COMPRESSOR STATION

Moscow IZVESTIYA in Russian 22 May 79 p 3

[Article by A. Trut'yev, correspondent of the press-center of the Mingazprom [Ministry of the Gas Industry], Tyumenskaya Oblast: "The Muscles of Gas Arteries"]

[Text] A high power compressor station -- the Samsonovskaya -- was put in operation on the Vyngapur-Surgut-Chelyabinsk gas pipeline. The central dispatcher control room of the Samsonovskaya compressor station is full of people who are preparing to start up two machines. These are very important minutes. Various colored bulbs flash and blink on the control panels and numbers appear on the registers. They change faster and faster as the shafts of the gas generator and the power turbine gather speed. The compressor station began the delivery of Tyumen' gas north to the pipeline.

A year and a half ago the first detachment of builders -- 30 people -- landed in the Salymskiye marshes of the Tyumenskaya Oblast. At the office of the construction site we met D. Kirenkov who headed the construction of the compressor station. He was one of the first who came to this uninhabited kray. Dmitriy Ivanovich tells us the following:

"At first, it was necessary to clean out a place in the taiga for the first structures. Quagmires were underfoot everywhere. Materials for foundations had to be brought great distances to erect the compressor station on a dry fill pad."

With I. Boyko, chief of the Line-Production Administration of Gas pipelines of the "Surguttransgaz" Association, I walk through the noisy machinery hall of the compression station. After the intense pressure of the last prestarting days, Ivan Vasil'yevich looks tired. At the same time, his face reflects the joy of the victory just achieved.

The Samsonovskaya station is located at the center of the main pipeline. This explains its exceptional importance. The seven turbines of the station have a total power of about 90,000 kilowatts.

2291
CSO: 1822

FUELS AND RELATED EQUIPMENT

ETHYLENE STORAGE SAFETY MEASURES

Kiev PRAVDA UKRAINY in Russian 24 May 79 p 4

[Article: "Ethylene Hidden Underground"]

[Text] An original, simple and entirely safe method for storing ethylene was proposed by specialists of the All-Union Scientific Research and Planning-Design Institute of Petroleum Refining and Petrochemical Industry. Its introduction will make it possible for the first time to store the dangerously explosive product industrially.

"In this unusual storage facility, the construction of which began in Eastern Siberia, ethylene will be at a depth of 1.5 kilometers in rock salt deposits," stated the author of the plan, N. K. Stukalova, candidate of technical sciences. "The storage facility is built by injecting ordinary water into the stratum under pressure, which washes out the salt."

What are the attractions of such a storage facility? As shown by the experience of more than 10 years of operation of the first domestic underground petroleum storage facility built in the Ukraine, it is absolutely safe with respect to fires and is not subject to any elemental calamities. Its construction and operation is only a half to a third of the cost of the usual petroleum storage facilities. In creating only one such facility, thousands of tons of high quality steel are saved, wide areas of valuable arable land are freed and evaporation losses are eliminated. Such original storage facilities can store any petroleum products, liquefied gases and even raw petroleum.

2291

CSO: 1822

FUELS AND RELATED EQUIPMENT

GAS AND PETROLEUM TRANSPORT PROBLEMS

Moscow SOVETSKAYA ROSSIYA in Russian 8 May 79 p 2

[Article by M. Umanakiy (Tyumen-Nadym-Novyy Urengoy): "Argument at the Dead End"]

[Text] "Only by plane can one get there..." The sense of this song, born at the time of the pioneer assimilation of the Priob' Region, becomes more meaningful today.

At Nadym where, due to the capricious weather, it was necessary to wait 3 day for a plane to depart, it was hard to believe that it is only 112 kilometers to the Panged Settlement in Medvezh'ye, and that, as in the initial stage of assimilation, this deposit is actually cut off from the rest of the country. Everything needed must be flown in. Almost a quarter of the cost of gas production at Urengoy and Medvezh'ye is eaten up by transportation costs.

This problem alarms many, but so far it is being solved with great difficulty. Take the roads. At best, they are most unsatisfactory. The plan of last year for same Medvezh'ye called for building only 14.5 kilometers of concrete roads, although to organize elementary communications through the marshes much more is required. But even this task was not fulfilled. By the end of the navigation season on the Nadym it was possible to bring in plates for laying only... six kilometers of road!

Sometimes it is as though this matter forms a closed circuit. Materials are needed to build roads while a regularly functioning road network is required for delivering the materials. There is only one way out of this circle -- fuller utilization of existing transport, primarily river transport.

The river workers themselves can name many reasons that delay their work.

Bureaucracy, the chronic sickness of construction and assimilation of large transportation centers, is evident in this matter. Let us take the ports of the Lower Ob' -- Labytnangi and Sergino. The necessity to modernise them and increase their transit capacity is obvious.

In time, up to a million tons of freight -- almost a third of all polar river shipments, by the end of the five-year plan period, will be handled at the Labytnangi. The total length of the piers is 800 meters. However, they will not be operated at full capacity, inasmuch as each customer imposes the modernization of the RR center and the construction of access tracks to the piers on the shoulders of the neighbor. The Minneftegas [Ministry of the Petroleum and Gas Industry] says, for example, that this is the job of the future permanent owners -- the river workers. The Minrechflot [Ministry of River Transport] has its argument: those who receive the freight should build up the port.

This narrows departmental approaches and also delays the development of another important link of the transportation network -- the RR arteries.

It would seem that the Ministry of RRs [MPS] and the Mintransstroy [Ministry of Transport Construction] would not repeat the errors made on the northern extension of the Surgut-Urengoy line which, to be precise, must become a reliable transportation bridge to the Polar Region. At first glance, the "Sibgiprotrans" in designing, took into account the needs not only of the gas workers but also of the petroleum people.

But...having passed the halfway mark, the builders are deviating more and more from the main target -- the Urengoy gas deposit! The terminal of the route, the Tikhaya Station, is almost 80 kilometers away from it. How could that happen?

"The Ministry of RRs did not coordinate with us on the plan of the road although it was obligated to do so," stated A. Yefimova, chief of the Administration of Consultation on Plans and Estimates of the Mingasproa [Ministry of the Gas Industry]. Their motive is clear: it is so much easier to build the road along river valleys, i.e. where it is now.

The transport people hide behind words -- they say, "we are going to Urengoy, what else do you want?" But the situation is that the Urengoy Settlement where the Tikhaya Station is located, and the city of Novaya Urengoy ("Yagel'noye") where the deposit is -- are two entirely different points. It is enough to take a look at the map to be convinced of this.

The gas people raised an alarm. Desperate letters were sent to the MPS and the Mintransstroy: correct your error and rectify the plan! Discussions and arguments lasted almost all last year. The expected result of all this procrastination already looks unpromising -- next year when, according to schedule, the transportation bridge to the Urengoy deposit must be completed, the erection of the final section will only begin.

And while this question is being discussed, a huge amount of freight must be transported by air. The ratio of such shipments in the Tyumenskaya Oblast is 2 to 3 times higher than in the union. Perhaps luckily, deficiencies missed aviation -- "the magic wand" of the North?

By coincidence we flew to Urengoy and back in the same helicopter. Having unloaded a 2-ton load, the crew of the "MI-8" took back only three passengers, as if not noticing the drill rig lying not far away. Looking at our puzzled faces V. Biketov, pilot of the ship, smiled:

"All this is the freight of the gas people. Our customer is the DSU-52 of the 'Urengoygazpromstroy!'"

At Nadym we see another minus in the narrow departmental approach to using air transport. Right behind the airport there are many large and small warehouses close to ten of which belong to the Minneftgasstroy alone. Even the fact that all of them belong to one ministry did not suggest the thought of consolidating them to managers of trusts, administrations and production bases for complete sets of equipment. Each one has its own brigades of loaders and materials handling equipment, tractors, containers and ramps. Also its own dispatchers.

Yet talks at Tyumen' have been carried on for a long time about centralized dispatcher services which would have comprehensive charge of aviation equipment with the government interests at heart. So far, regrettably, they limit themselves only to talks!

2291

CSO: 1822

FUELS AND RELATED EQUIPMENT

TURKMEN DRILLERS RECEIVE AIRLIFTED SUPPLIES

Moscow PRAVDA in Russian 13 May 79 p 1

[Text] Mineral prospectors of Turkmenistan began their field season. Plane pilots are of great help to brigades of the Yuzhno-Turkmenskoye Administration of Exploration Drilling of the "Turkmenburgaz" Production Association.



Drilling equipment, fuel, food, fresh newspapers and journals are supplied regularly to prospectors in Eastern and Western Shatlyk and Tegzhen by the crew of the "MI-4" helicopter of the Chardzhouskoye Enterprise of Civil Aviation, piloted by N. Goryachev and N. Pettulayev.

FUELS AND RELATED EQUIPMENT

BRIEFS

NEW TRANSMISSION LINES -- Two more high voltage electric power transmission lines [LEP] will appear in North Tyumen'. Their routes will stretch along the Surgut-Urengoy RP which is being built. One LEP will connect the Kholmogorovskoye petroleum deposit at the Noyabr'skaya Station, while the other will extend from Tarko-Sale to Pur-pe. The surveying of the routes was done by the Energoset'proyekt Institute. [Text] [Moscow STRUITEL'NAYA GAZETA in Russian 10 Jun 79 p 3] 2291

SURGUT-POLOTSK PIPELINE -- Perm' -- Builders of the Surgut-Polotsk main petroleum pipeline completed laying a 1.5 kilometer inverted siphon across the Sylva River. This means that the last water barrier to shipping Tyumen' petroleum to Perm' has been overcome. According to schedule, the Perm' "section" of the pipeline, 1257 kilometers long, must be released for operation to provide raw materials to petroleum refining enterprises of the Kama Region. [Text] [Moscow PRAVDA in Russian 23 May 79 p 1] 2291

KANSKO-ACHINSK COMPLEX -- Work is proceeding in the Krasnoyarskiy Kray on creating the Kansko-Achinsk fuel-power complex (KATEK). Large reserves of coal and favorable mining-geological conditions for producing the coal by the efficient stripping method make it possible to increase fuel production to 350 million tons per year, and build very large thermal electric power plants. [Text] [Moscow PRAVDA in Russian 23 May 79 p 1] 2291

SURGUTSKAYA GRES -- Khanty-Mansiysk -- The Surgutskaya GRES produced 50 billion kw-hours of electric power since it began operation. This is a great labor victory for the collective of builders, installers and operating workers of the plant. How it was achieved is told by Petr Ivanovich Makin, secretary of the party bureau of the plant: "Due to the friendly work of the builders, installers and operating workers, the power units were put in operation at advanced rates. Their assimilation to rated technical-economic indicators was done 2 to 3 times faster than specified by the norms. This helped to achieve a high coefficient of equipment utilization. It was 95.5 percent in 4 months. This means that the power units operated at maximum loads and almost without stopping. A strong collective grew at the electric power plant, and many skilled specialists have developed. At present, 32 collectives of the enterprise and more than 1000 workers were awarded the high titles of collective or shock worker of Communist labor. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 19 May 79 p 1] 2291

NEW TRANSMISSION LINE -- The first stage of the new LEP [Electric power transmission line] was put in operation under an industrial load. It is being built in parallel with the existing Nurek-Tursunzade LEP-500 line. The new high voltage line will improve the power supply to the Tadzhik Aluminum Plant. This year, electric power from the Nurekskaya GES will come over it.

to the next electrolysis building being built. With the GES reaching its full rated capacity, this LEP will be used only for the needs of the aluminum plant. We are building a parallel transmission line," stated V. A. Gritsak, chief engineer of mechanized column 50 of the "Sredazelektroset'stroy" Trust," in the reverse direction from the Tursunzade to Nurek. This is not accidental. A large section of the line passes over cotton fields and kolkhoz gardens. In order not to interfere with agricultural workers during field work, we assumed the obligation to install high voltage masts and stretch wires on this section in the winter. This work which is of good quality will be done ahead of schedule. The best brigades of electric linemen, those headed by D. Mayeykin, N. Kulemin and A. Doromin used the flow-line method of construction to accelerate the work. They erected foundations, installed masts and stretched wires simultaneously. This made it possible to save not only time, but also construction materials and to utilize efficiently the high power equipment. [Text] [Dushanbe KOMMUNIST TADZHIKISTANA in Russian 12 May 79 p 1] 2291

NEW POWER LINES -- Strezhevoy, Tomskaya Oblast -- Voltage was applied to the Chapayevka-Katyl'ga electric power transmission line. The delivery of power to the Vasyugan'ye petroleum fields has begun. This 180-kilometer line was built in 3 months -- six times faster than called for in the plan. The lack of roads and severe frosts did not stop the builders. The power will make it possible for the petroleum workers in the new "Vasyuganneft'" to operate high power drill rigs for multiple drilling of wells. The Vasyugan-Raskino petroleum pipeline will operate more intensively. In 1980, it is planned to double petroleum production in Tomskaya Oblast due to the assimilation of new deposits. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 4] 2291

NEW POWER LINE -- Shevchenko, Mangyshlaksкая Oblast -- The route of the Shevchenko-Karazhanbas 220 kv electric power transmission line will stretch across the arid desert. The hanging of the wires has begun on this 240-kilometer line, improving the power supply to the new petroleum producing region. This year, it is planned to build about 18,000 kilometers of electric power transmission lines of various voltages in Kazakhstan. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 4] 2291

ROGUNSKAYA GES -- Rogun, Tadzhik SSR -- It will be 6 months before the Nurekskaya GES reaches its rated capacity, but the construction site collective has already sent a part of its people and equipment to build the Rogunskaya GES in the upper part of the Vakhsha River. Hundreds of builders and drivers of the 27-ton Belaz were sent here from Nurek, along with high power excavators and other devices. This will make it possible to accelerate the construction of a road through the high mountains to the GES. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 4] 2291

NUREKSKAYA GES -- Dushanbe -- The final stage of filling the water reservoir of the Nurekskaya GES has begun. Automatic machines moved high power ball valves and spillway tunnels were tightly closed. The water spills only through the power units. Up to 2000 cubic meters of water enters the reservoir every second. Calculations by specialists show that this rate of filling will make it possible to accumulate 10.5 billion cubic meters of water by 7 November -- the start-up day of the ninth power unit of the plant. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 24] 2291

NEW GAS PIPELINE -- Tallin -- The last section of the Tartu- Rakvete gas pipeline was completed. Natural gas from Western Siberia will be coming here. It will be received in the republic over a previously built main line in Northern Estonia. The second line of the gas pipeline, when joined to the first, will raise the reliability of supplying fuel to the industrial zones of the republics of the Soviet Baltic Sea region. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 24] 2291

NEW GAS PIPELINE -- Leningrad -- Villages in the Leningradskaya Oblast have begun receiving natural gas over a steel artery from the Gryazovets-Leningrad main. The 10th Five-Year Plan for economic and social development of the Leningradskaya Oblast calls for full gasification of villages and settlements. [Text] [Moscow PRAVDA in Russian 21 May 79 p 1] 2291

SAMOTLOR GROWS -- The 500 millionth ton of liquid fuel since the start of the developing of the fields was produced yesterday at the Mikhnevartovsk Administration imeni V. I. Lenin. This important labor victory was achieved on the eve of a famous event for Tyumen' petroleum workers -- the 10th anniversary of the start of production at Samotlor. On 2 April 1969, the first tons of petroleum were produced. Never before have such rates of assimilation of a marshy, almost inaccessible region. This year, the country will receive 145 million tons of Samotlor fuel. Over 80 millions will be produced by the "Mikhnevartovskneft'" collective. [Text] [Riga SOVETSKAYA LATVIYA in Russian 1 Apr 79 p 1] 2291

PATENT ISSUED -- The government Scientific Research Power Institute imeni Krzhizhanovskiy developed an efficient method for the thermal reprocessing of solid fuels and created a power-fuel chemical installation for producing high calorie semicoke (coke fines), tar and gas. The method is as follows: The solid fuel in the form of dust is heated by a heat carrier in a rotational chamber of the first stage to 200-450 degrees, the temperature is then raised in the second stage chamber to 450-750 degrees after which the gas suspension is cooled to 140-360 degrees. As a result, semicoke is produced which practically does not raise dust, is not hygroscopic and is convenient to ship, with calorific values higher than obtained with previous methods. The developed technology is now being used on a large industrial scale for comprehensive utilization of the Kansk-Achinsk lignites. The installations created are fully automatic and are controlled from a central control panel. The method and the installation are protected by ten patents. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 79 p 16] 2291

COMPLAINT ON "VYATKA" -- Reply received from I. Golovanov, chairman of the Sverdlovskaya Oblast People's Control Committee on article "Let Go to the Winds" (PRAVDA 10 April). The bureau of the Alpayevskiy gorkom of the CPSU issued a strict reprimand to V. Kabanov, manager of the Nizhnesinyachikhinskiy Special Department of the Sverdlovsk Agricultural Chemical Trust, for unsatisfactory utilization of the "Vyatka" installation and instructed him to put the installation in operation in May. For an irresponsible attitude toward the construction and installation of the "Vyatka" the Oblast People's

Control Committee issued a strict reprimand to L. Zagoryuyev, manager of the Agricultural Chemical Trust, and a reprimand to I. Sen'kin, deputy chief of the Yegorshinskoye Division of the Sverdlovsk RR. The Alapayevskiy Rayon People's Control Committee was instructed to monitor the completion of the electric line and the start-up of the "Vyatka" installation [Text] [Moscow PRAVDA in Russian 21 May 79 p2] 2291

REPLY TO COMPLAINT -- Reply received from I. Dugin, deputy chief of the Glavgaz of the RSFSR Ministry of Housing and Municipal Facilities, on letter "Convenient, but not for Everybody" (PRAVDA, 5 April). The danger of explosion, and toxicity from gas fuels require strict monitoring of the gas supply system, especially of gas equipment in apartments. An experiment is being made in Ryazan', Kalinin, Kuybyshev and Saratov -- gas enterprises changed over to making preventive maintenance repairs of gas pipelines and gas ranges in apartments once every 5 years. In the interval between, planned repair servicing will be done on application. If the results of the experiment are satisfactory, such an order of servicing will be applied to all gas installations in the country. On an experimental basis, permission was given to the "Ul'yanovskoblغاز" Administration to make repairs on application. [Text] [Moscow PRAVDA in Russian 21 May 79 p 2] 2291

STAVROPOL'SKAYA GRES -- Work on all basic construction sections of the second stage of the Stavropol'skaya GRES is proceeding ahead of schedule. The collective of the shock Komsomol construction site decided to complete the erection of the sixth power unit in September a month ahead of schedule. With its start-up, the total power of the electric power plant will reach 1,800,000 kilowatts. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 May 79 p 1] 2291

SURGUT-POLOTSK PIPELINE -- Perm' -- The last water barrier -- the Sylva River, was overcome today by the builders of the 1000-kilometer Surgut-Polotsk petroleum main. They reached the shores of the Sylva River at the peak of the ice flows and spring floods. The width of the river here, near Perm', is over 1.5 kilometers. But even in that complex situation, the builders met the schedule. In this they were helped by the great amount of experience gained during the building of the route. The petroleum main was built through the taiga, the marshes and the mountains. Tens of large and small rivers were crossed. The most difficult water barrier was the Chusovaya River. It is not wide -- only 170 meters, but the approaches to it had to be through rocks. Machine operators had to remove about 1000 cubic meters of rocks. Their initiative, resourcefulness and courage made it possible for the builders to run the route from Surgut to Perm' under difficult conditions twice as fast as called for by the norms. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 May 79 p 1] 2291

END OF

FICHE

DATE FILMED

July 25, 1979

J.D.